

# Socio-Economic Differences in Health, Nutrition, and Population

## CHAD

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**SOCIO-ECONOMIC DIFFERENCES  
IN  
HEALTH, NUTRITION, AND POPULATION**

**CHAD  
1996/97, 2004**

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## FOREWORD

The World Bank shares the desire of its member states and client countries to ensure that the poor partake fully in the health gains that the countries achieve. To assist in this, the Bank, in cooperation with the Dutch and Swedish Governments, has sponsored the set of reports providing basic information about health inequalities within countries to which this document belongs.

The information shows clearly that disparities in both health conditions and health service use are unacceptably large. As countries and the Bank work to reduce important inequalities among regions and countries, there is a clear need for equally vigorous efforts to lessen the inequity represented by intra-country differences among socio-economic groups.

My colleagues and I hope that all concerned with equity in health will find this information useful in making the case for effective actions to improve the health of the poor, and in designing programs to achieve this crucial objective.

Joy Phumaphi  
Vice President  
Human Development Network  
The World Bank



## INTRODUCTION

This report is one in a series that provides basic information about health, nutrition, and population (hnp) inequalities within fifty-six developing countries.

The series to which the report belongs is an expanded and updated version of a set covering forty-five countries that was published in 2000. The fifty-six reports in the current series cover almost all DHS surveys undertaken during the period beginning in 1990 and ending with the date of the last survey for which data were publicly available as of June 2006.<sup>1</sup>

The report's contents are intended to facilitate preparation of country analyses and the development of activities to benefit poor people. To this end, the report presents data about hnp status, service use, and related matters among individuals belonging to different socio-economic classes. The principal focus is on differences among groups of individuals defined in terms of the wealth or assets of the households where they reside. The source of data is the Demographic and Health Survey (DHS) program, a large, multi-country household survey project.

The figures in this and the other reports in the series draw on responses to questions about household wealth or assets included in the DHS questionnaire, which were similar for all the surveys covered. These responses served as the basis for the construction of a wealth index, which was used to rank individuals according to the index value for the household to which they belonged. The individuals were then divided into quintiles, and the mean value for each of up to approximately 120 indicators was calculated for each quintile.

The report is organized in four principal parts:

- Parts one and two, which constitute the report's core, consist of tables presenting quintile-specific data for each hnp indicator covered from the two most recent DHS surveys available at the time of the report's publication. In each part there are three sets of tables: the first provides quintile-specific information for the total population; the second presents data separately for quintiles of females and males; the third features quintile-specific information presented separately for rural and urban residents. Each of these sets is divided into four sections: one dealing with hnp status, the second with the use of hnp services, the third with hnp-related behavior, and the fourth with other hnp status determinants.

- Part three provides supplementary technical information designed to help readers understand the data presented in parts one and two. This information deals with such issues as how the covered hnp indicators were defined and how the quintile-specific estimates were derived.

- Parts four and five present supporting tables that deal with three of the technical matters covered in part three: the size of the sample for each indicator covered; the standard error

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<sup>1</sup> The average interval of approximately two years between data collection and availability means that the latest surveys covered were conducted in 2005.

for each quintile-specific estimate in the total population; and the items used in constructing the wealth index, along with the weight assigned to each.

An additional, sixth part consists of three annexes, for readers interested in applying the approach used in the report or in learning more about the other reports in this series. The first annex is an annotated bibliography containing further information about the technical issues concerning the approach used in the report, and about employing that approach to examine additional issues using DHS or other data sets. The second shows how the report's approach can be applied to monitor the distribution of benefits from other hnp programs, and provides a tool for doing so. The third annex is a list of all fifty-six countries for which reports are available, along with an indication of how to obtain copies of the reports dealing with them.

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The authors thank the Dutch and Swedish Governments for the generous support that made production of this report possible.

## **PART I. BASIC TABLES, 2004**

### **A. TOTAL POPULATION**

### **B. FEMALE AND MALE POPULATIONS**

### **C. RURAL AND URBAN POPULATIONS**

#### Notes:

- Each of the three sections referred to above consists of four divisions, presenting data for: I) hnp status; II) hnp service use; III) hnp-related individual and household behavior; and IV) other, underlying determinants of hnp status.
- Full definitions of all indicators covered in the tables are provided in section A of the technical notes found in part II.
- “na” appears in the table cells when data are not available, usually because the DHS survey concerned did not collect information about the indicator(s) in question.
- Figures in the tables shown within parentheses indicate the absence of adequate observations to produce acceptably reliable values. Asterisks appear when the number of observations was too small to justify the presentation even of figures within parentheses. (For further information, see the section on “Sampling Errors” in the presentation of data and methods in part II.B.) Asterisks also will be found in columns showing statistical indices of inequality when the amount of quintile-specific information available is inadequate to permit computation of the value for the index concerned.
- Female/male tables include only indicators relevant for both sexes; those pertaining to only one sex (e.g., fertility, women’s nutritional status, antenatal care, attended deliveries) have been omitted.



Chad  
2004 - TOTAL POPULATION

Part I: HNP STATUS

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>A. Childhood illness and mortality</b>										
Infant mortality rate	109.2	122.5	117.4	122.4	100.9	115.2	1.08	8.30	-0.0104	0.0244
Under-five mortality rate	176.0	208.2	211.5	225.0	186.5	202.5	0.94	10.54	0.0157	0.0286
Prevalence of fever	26.5	38.8	32.8	37.7	34.0	34.3	0.78	7.54	-0.0008	0.0103
Prevalence of diarrhea	19.6	31.9	27.8	26.4	27.3	26.9	0.72	7.63	0.0204	0.0119
Prevalence of acute respiratory infection	7.4	10.7	8.0	9.5	10.1	9.2	0.74	2.65	-0.0033	0.0241
<b>B. Fertility</b>										
Total fertility rate	5.1	6.6	6.9	7.2	6.0	6.3	0.86	0.85	0.0296	0.0363
Adolescent fertility rate	138.8	220.2	223.5	191.9	164.1	187.3	0.85	25.29	0.0075	0.0567
<b>C. Nutritional status (%)</b>										
<i>Children:</i>										
Moderate stunting	19.7	15.3	19.7	18.1	16.6	17.8	1.19	3.16	-0.0384	0.0170
Severe stunting	31.0	23.7	25.0	21.1	15.1	23.2	2.05	15.85	-0.1233	0.0140
Moderate underweight	27.5	23.0	22.9	21.3	19.2	22.7	1.43	8.24	-0.0610	0.0147
Severe underweight	20.8	11.9	14.5	14.4	9.3	14.0	2.24	11.53	-0.1393	0.0197
Mild anemia	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na
<i>Women:</i>										
Malnutrition	29.9	17.8	20.2	18.0	14.7	20.0	2.03	15.18	-0.1354	0.0170
Mild anemia	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na
<b>D. Female circumcision (%)</b>										
<i>Prevalence of circumcision:</i>										
Girls	47.4	25.4	14.3	13.0	18.1	24.6	2.61	29.24	-0.1989	0.0174
Women	88.1	58.6	34.2	31.6	43.8	53.1	2.01	44.30	-0.1468	0.0066
<i>Prevalence of occlusion:</i>										
Girls	4.5	3.9	0.9	7.0	3.7	4.1	1.20	0.74	0.0955	0.0929
Women	1.0	1.8	1.8	2.5	5.7	2.3	0.18	4.70	0.5644	0.0877
<b>E. Sexually transmitted disease</b>										
<i>Prevalence of genital discharge:</i>										
Women	4.0	4.8	2.1	3.8	7.5	4.5	0.54	3.45	0.1847	0.0345
Men	2.3	0.9	2.0	1.6	2.1	1.8	1.11	0.22	0.1742	0.1040
<i>Prevalence of genital ulcer:</i>										
Women	1.0	0.9	0.6	0.5	1.5	0.9	0.68	0.47	0.0648	0.0747
Men	0.7	0.9	0.9	2.3	1.1	1.2	0.61	0.43	0.1256	0.1218

## Chad

## 2004 - TOTAL POPULATION

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>A. Childhood immunization</b>										
BCG coverage	13.8	34.2	41.8	43.3	67.8	40.2	0.20	54.01	0.2744	0.0187
Measles coverage	8.2	16.3	28.2	23.6	38.1	22.8	0.21	29.95	0.2843	0.0315
DPT coverage	4.7	14.2	17.3	22.4	42.3	20.1	0.11	37.58	0.4123	0.0334
Full basic coverage	1.1	7.1	12.4	12.4	23.6	11.3	0.04	22.52	0.3944	0.0479
No basic coverage	29.9	20.4	18.0	18.7	13.0	19.9	2.30	16.90	-0.1491	0.0335
Hepatitis B coverage	na	na	na	na	na	na	na	na	na	na
Yellow fever coverage	na	na	na	na	na	na	na	na	na	na
<b>B. Treatment of childhood illnesses</b>										
<i>Treatment of fever:</i>										
Medical treatment of fever	7.6	16.8	21.7	20.8	39.0	21.5	0.19	31.43	0.2700	0.0228
Treatment in a public facility	1.8	4.3	5.6	7.9	29.6	9.7	0.06	27.73	0.5290	0.0426
Treatment in a private facility	1.3	0.6	1.4	1.3	4.7	1.8	0.28	3.41	0.7118	0.1271
<i>Treatment of acute respiratory infection:</i>										
Medical treatment of ARI	7.4	4.9	6.4	9.4	20.3	9.6	0.37	12.87	0.3842	0.0794
Treatment in a public facility	1.8	2.3	1.1	1.8	17.5	5.0	0.11	15.68	0.6116	0.1346
Treatment in a private facility	4.6	0.0	0.0	2.4	1.4	1.5	3.29	3.24	0.3907	0.2273
<i>Treatment of diarrhea:</i>										
Use of oral rehydration therapy	14.9	40.1	32.2	42.5	49.5	37.5	0.30	34.62	0.1383	0.0177
Medical treatment of diarrhea	1.2	10.2	14.5	18.5	35.2	16.3	0.03	33.97	0.4018	0.0313
Treatment in a public facility	1.2	4.5	11.1	5.8	28.7	10.2	0.04	27.56	0.5495	0.0464
Treatment in a private facility	0.0	0.6	0.0	1.5	3.5	1.1	0.00	3.53	0.7898	0.1937
<b>C. Antenatal and delivery care</b>										
<i>Antenatal care visits:</i>										
To a medically trained person	9.2	30.4	43.2	53.7	77.4	42.6	0.12	68.24	0.3228	0.0076
To a doctor	0.3	0.9	2.4	3.3	6.4	2.6	0.04	6.15	0.5845	0.0670
To a nurse or trained midwife	8.9	29.5	40.8	50.5	71.0	40.0	0.13	62.09	0.3055	0.0086
Multiple visits to a medically trained person	4.9	19.8	27.4	37.5	64.4	30.5	0.08	59.44	0.4148	0.0107
<i>Antenatal care content:</i>										
Tetanus toxoid	11.8	34.0	39.3	51.6	72.5	41.8	0.16	60.67	0.2933	0.0084
Prophylactic antimalarial treatment	11.1	25.3	34.9	40.7	56.4	33.6	0.20	45.36	0.2578	0.0102
Iron supplementation	7.6	16.2	27.5	36.4	57.7	28.7	0.13	50.18	0.3705	0.0120
<i>Delivery attendance:</i>										
By a medically trained person	1.4	7.2	7.9	14.8	51.4	16.1	0.03	50.06	0.7311	0.0169
By a doctor	0.1	0.3	0.2	0.6	2.7	0.7	0.05	2.52	0.9822	0.1240
By a nurse or trained midwife	1.2	7.0	7.7	14.2	48.8	15.4	0.03	47.53	0.7188	0.0177
In a public facility	0.5	3.7	4.5	9.7	39.8	11.3	0.01	39.30	0.8532	0.0240
In a private facility	0.1	0.2	0.1	0.6	1.4	0.5	0.10	1.28	0.8949	0.1607
At home	97.7	93.6	93.4	87.2	56.4	86.0	1.73	41.32	-0.1159	0.0032

## Chad

## 2004 - TOTAL POPULATION

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE (Cont.)

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>D. Contraceptive services</b>										
<i>Contraceptive prevalence:</i>										
Women	0.0	0.2	1.0	0.4	7.3	1.6	0.00	7.32	0.8319	0.0812
Men	0.0	2.0	2.4	5.3	14.1	4.9	na	14.10	0.5895	0.0722
<i>Source of contraception - public sector:</i>										
Women	*	*	*	64.6	na	63.0	*	*	*	*
Men	na	na	na	na	na	na	na	na	na	na
<i>Source of contraception - private sector:</i>										
Women	*	*	*	32.3	na	33.2	*	*	*	*
Men	na	na	na	na	na	na	na	na	na	na
<b>E. Treatment of adult illnesses</b>										
<i>Treatment of genital discharge, ulcer, sore:</i>										
Women	17.7	29.7	(45.1)	54.6	65.5	45.0	0.27	47.77	0.3160	0.0323
Men	*	*	*	*	*	59.9	*	*	*	*
<i>Treatment of genital discharge, ulcer, sore in public facilities:</i>										
Women	17.7	29.7	(45.1)	54.6	65.5	45.0	0.27	47.77	0.3157	0.0323
Men	*	*	*	*	*	59.9	*	*	*	*
<i>Voluntary counseling and testing for HIV/AIDS:</i>										
Women	0.2	0.6	0.1	1.8	7.7	2.1	0.02	7.55	0.8806	0.0643
Men	0.6	0.5	1.0	1.2	12.5	3.9	0.04	11.91	0.8433	0.0802

## Chad

## 2004 - TOTAL POPULATION

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>A. Hygienic practices</b>										
<i>Disposal of children's stools:</i>										
Sanitary disposal	na	na	na	na	na	na	na	na	na	na
<i>Handwashing:</i>										
Wash hands prior to preparing food	na	na	na	na	na	na	na	na	na	na
Handwashing facilities in household	na	na	na	na	na	na	na	na	na	na
<b>B. Bednet ownership and use</b>										
<i>Bednet ownership:</i>										
Bednet ownership	73.4	47.4	59.5	64.5	82.3	64.6	0.89	8.86	0.0656	0.0051
Treated bednet ownership	na	na	na	na	na	na	na	na	na	na
<i>Bednet use:</i>										
By children	67.0	42.2	49.9	53.6	71.2	55.8	0.94	4.15	0.0718	0.0066
By pregnant women	na	na	na	na	na	na	na	na	na	na
<b>C. Breastfeeding</b>										
Exclusive breastfeeding	0.9	1.4	5.3	0.2	1.7	1.8	0.53	0.80	0.0649	0.2053
Timely complementary feeding	(54.1)	62.1	71.8	76.8	76.0	69.4	(0.71)	130.19	0.0575	0.0207
Bottle-feeding	0.4	2.9	0.7	0.5	12.4	3.4	0.03	12.02	0.9891	0.1338
<b>D. Micronutrient consumption</b>										
<i>Iodized salt:</i>										
Availability of iodized salt in household	34.2	70.7	74.6	79.2	78.3	65.9	0.44	44.02	0.1351	0.0054
<i>Vitamin A:</i>										
Children	33.7	30.5	22.8	33.5	53.9	34.5	0.63	20.19	0.1644	0.0124
Women	na	na	na	na	na	na	na	na	na	na
<b>E. Tobacco and alcohol use</b>										
<i>Tobacco:</i>										
Women	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na
<i>Alcohol:</i>										
Women	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na
<b>F. Sexual practices</b>										
<i>Non-regular sexual partnerships:</i>										
Women	0.0	0.4	0.4	2.1	1.6	0.9	0.00	1.62	0.4273	0.0777
Men	na	na	na	na	na	na	na	na	na	na
<i>Condom usage with non-regular partner:</i>										
Women	*	*	*	*	*	(9.6)	*	*	*	*
Men	na	na	na	na	na	na	na	na	na	na
<b>G. Domestic violence</b>										
Ever experienced violence	na	na	na	na	na	na	na	na	na	na
Experienced violence in past year	na	na	na	na	na	na	na	na	na	na

## Chad

## 2004 - TOTAL POPULATION

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>A. Education</b>										
<i>School completion:</i>										
Women	0.0	3.6	5.8	9.6	35.5	10.8	0.00	35.51	0.7515	0.0213
Men	1.6	21.4	27.9	39.4	58.4	32.3	0.03	56.76	0.3967	0.0088
<i>School participation:</i>										
Girls	7.1	27.6	26.0	37.4	56.0	29.7	0.13	48.97	0.3135	0.0137
Boys	10.3	40.3	31.4	48.6	64.1	38.6	0.16	53.75	0.2625	0.0103
<b>B. Exposure to mass media</b>										
<i>Newspaper readership:</i>										
Women	0.2	0.4	0.3	1.4	13.8	3.2	0.02	13.57	1.0499	0.0556
Men	0.0	3.1	8.3	12.0	33.5	13.3	0.00	33.54	0.6721	0.0328
<i>Radio listenership:</i>										
Women	4.0	10.9	10.7	22.1	64.1	22.4	0.06	60.19	0.6088	0.0114
Men	16.5	44.5	53.1	67.2	81.6	55.8	0.20	65.19	0.2383	0.0087
<i>Television viewership:</i>										
Women	0.4	1.1	1.1	1.3	22.5	5.3	0.02	22.13	1.2317	0.0467
Men	1.3	4.8	6.5	8.4	39.3	14.3	0.03	38.05	0.7385	0.0325
<b>C. Knowledge and attitudes about HIV/AIDS</b>										
<i>Knowledge about sexual transmission of HIV/AIDS:</i>										
Women	26.0	43.1	43.9	54.0	55.8	44.6	0.47	29.83	0.1416	0.0074
Men	69.1	73.9	59.3	68.4	78.5	70.5	0.88	9.46	0.0318	0.0081
<i>Knowledge about mother-to-child transmission of HIV/AIDS:</i>										
Women	15.2	51.6	57.0	63.1	73.0	51.9	0.21	57.84	0.2100	0.0055
Men	37.4	70.6	63.6	68.4	78.5	65.6	0.48	41.04	0.1119	0.0093
<i>Attitudes toward HIV/AIDS:</i>										
Women	63.3	73.3	75.2	73.9	82.2	74.8	0.77	18.90	0.0439	0.0046
Men	60.8	51.9	43.9	47.5	64.4	54.5	0.94	3.59	0.0460	0.0126
<b>D. Status of women</b>										
<i>Household decisionmaking:</i>										
Can seek own health care	na	na	na	na	na	na	na	na	na	na
Can seek children's health care	na	na	na	na	na	na	na	na	na	na
Can make daily household purchases	na	na	na	na	na	na	na	na	na	na
Can make large household purchases	na	na	na	na	na	na	na	na	na	na
Can make meal-related decisions	na	na	na	na	na	na	na	na	na	na
<i>Freedom of movement:</i>										
Can travel to visit family, relatives	na	na	na	na	na	na	na	na	na	na
<i>Other decisionmaking, attitudes:</i>										
Can decide how to spend own money	47.1	50.2	54.6	56.6	85.6	60.5	0.55	38.50	0.1522	0.0083
Can decide whether to have sex	81.8	88.2	84.1	81.8	75.9	82.4	1.08	5.82	-0.0217	0.0034
Justifies domestic violence	na	na	na	na	na	na	na	na	na	na
<b>E. Orphanhood</b>										
Paternal orphan prevalence	4.2	5.7	4.8	3.3	7.6	5.1	0.55	3.39	0.1359	0.0200
Maternal orphan prevalence	1.4	2.2	2.7	2.6	4.3	2.6	0.33	2.87	0.2002	0.0271
Double orphan prevalence	0.2	0.6	0.4	0.3	2.0	0.7	0.10	1.76	0.5356	0.0671



## Chad

## 2004 - FEMALE / MALE POPULATIONS

## Part I: HNP STATUS

Indicator	Wealth Quintiles - Female						Wealth Quintiles - Male					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Childhood mortality and morbidity</b>												
Infant mortality rate	83.4	111.1	120.4	120.8	98.1	107.7	133.9	134.6	114.5	123.9	103.5	122.4
Under-five mortality rate	154.0	201.1	229.0	215.6	184.1	198.0	197.1	216.0	195.6	234.2	188.8	207.0
Prevalence of fever	29.4	37.7	29.9	36.7	31.9	33.5	23.7	40.2	35.4	38.7	36.0	35.1
Prevalence of diarrhea	19.4	32.7	27.0	26.8	24.0	26.5	19.9	30.9	28.4	25.9	30.4	27.3
Prevalence of acute respiratory infection	7.9	11.2	8.8	12.4	10.7	10.3	7.0	10.3	7.2	6.7	9.5	8.1
<b>B. Nutritional status</b>												
<i>Children:</i>												
Moderate stunting	21.7	15.9	21.8	18.3	16.5	18.7	17.8	14.6	17.9	17.9	16.6	17.0
Severe stunting	27.7	23.0	25.1	21.3	16.7	22.7	34.2	24.6	24.9	21.0	13.7	23.6
Moderate underweight	23.5	22.0	25.3	22.3	20.0	22.6	31.4	24.0	20.8	20.3	18.5	22.8
Severe underweight	22.9	11.8	14.6	13.5	9.4	14.2	18.8	12.0	14.4	15.3	9.2	13.9
Mild anemia	na	na	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na	na	na
<b>C. Sexually transmitted disease</b>												
<i>Prevalence of genital discharge:</i>												
Women	4.0	4.8	2.1	3.8	7.5	4.5						
Men							2.3	0.9	2.0	1.6	2.1	1.8
<i>Prevalence of genital ulcer:</i>												
Women	1.0	0.9	0.6	0.5	1.5	0.9						
Men							0.7	0.9	0.9	2.3	1.1	1.2

## Chad

## 2004 - FEMALE / MALE POPULATIONS

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles - Female						Wealth Quintiles - Male					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Childhood immunization</b>												
BCG coverage	9.4	35.6	42.2	47.3	66.7	40.1	19.1	32.6	41.5	39.3	69.0	40.2
Measles coverage	7.9	12.9	30.5	25.8	39.1	23.0	8.5	20.1	25.6	21.4	37.0	22.6
DPT coverage	5.9	15.1	16.0	25.0	41.7	20.6	3.3	13.3	18.7	19.7	43.0	19.6
Full basic coverage	1.9	7.4	11.5	14.5	24.2	11.8	0.0	6.7	13.3	10.2	22.9	10.6
No basic coverage	23.9	24.5	12.1	14.5	14.0	17.8	37.3	15.7	24.2	23.1	12.0	22.3
Hepatitis B coverage	na	na	na	na	na	na	na	na	na	na	na	na
Yellow fever coverage	na	na	na	na	na	na	na	na	na	na	na	na
<b>B. Treatment of childhood illnesses</b>												
<i>Treatment of fever:</i>												
Medical treatment of fever	9.4	18.1	29.3	19.3	40.0	22.7	5.5	15.4	16.1	22.3	38.2	20.4
Treatment in a public facility	3.4	5.6	4.5	8.7	33.3	10.6	0.0	2.9	6.4	7.1	26.4	8.8
Treatment in a private facility	2.4	0.0	1.1	2.5	4.2	1.9	0.0	1.2	1.7	0.2	5.2	1.7
<i>Treatment of acute respiratory infection:</i>												
Medical treatment of ARI	14.3	8.0	9.1	7.1	26.5	12.2	0.0	1.0	3.7	13.7	13.7	6.4
Treatment in a public facility	3.5	4.2	1.8	0.3	25.2	6.6	0.0	0.0	0.4	4.8	9.3	3.0
Treatment in a private facility	8.9	0.0	0.0	3.7	0.2	2.2	0.0	0.0	0.0	0.0	2.7	0.6
<i>Treatment of diarrhea:</i>												
Use of oral rehydration therapy	na	na	na	na	na	na	na	na	na	na	na	na
Medical treatment of diarrhea	0.0	13.0	19.7	20.8	34.7	17.9	2.3	6.8	10.1	16.0	35.5	14.8
Treatment in a public facility	0.0	7.3	13.1	6.6	28.5	10.8	2.3	1.0	9.4	5.0	29.0	9.7
Treatment in a private facility	0.0	1.0	0.0	1.7	5.4	1.6	0.0	0.0	0.0	1.3	2.1	0.7
<b>C. Contraceptive services</b>												
Women	0.0	0.2	1.0	0.4	7.3	1.6						
Men							0.0	2.0	2.4	5.3	14.1	4.9
<i>Source of contraception</i>												
<i>public sector:</i>												
Women	43.1	55.5	62.5	64.6	na	63.0						
Men							na	na	na	na	na	na
<i>Source of contraception -</i>												
<i>private sector:</i>												
Women	0.0	44.5	37.5	32.3	na	33.2						
Men							na	na	na	na	na	na
<b>D. Treatment of adult illnesses</b>												
<i>Treatment of genital discharge,</i>												
<i>ulcer, sore:</i>												
Women	17.7	29.7	45.1	54.6	65.5	45.0						
Men							14.7	100.0	66.9	74.3	52.9	59.9
<i>Treatment of genital discharge,</i>												
<i>ulcer, sore in public facilities:</i>												
Women	17.7	29.7	45.1	54.6	65.5	45.0						
Men							14.7	100.0	66.9	74.3	52.9	59.9
<i>Voluntary counseling and testing</i>												
<i>for HIV/AIDS:</i>												
Women	0.2	0.6	0.1	1.8	7.7	2.1						
Men							0.6	0.5	1.0	1.2	12.5	3.9

## Chad

## 2004 - FEMALE / MALE POPULATIONS

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles - Female						Wealth Quintiles - Male					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Hygienic practices</b>												
<i>Disposal of children's stools:</i>												
Sanitary disposal	na	na	na	na	na	na						
<i>Handwashing:</i>												
Wash hands prior to preparing food	na	na	na	na	na	na						
Handwashing facilities in household	na	na	na	na	na	na						
<b>B. Bednet ownership and use</b>												
<i>Bednet use:</i>												
By children	67.0	42.2	49.9	53.6	71.2	55.8						
<b>C. Breastfeeding</b>												
Exclusive breastfeeding	0.0	0.0	13.1	0.5	3.2	2.7	1.6	3.4	0.0	0.0	0.7	1.1
Timely complementary feeding	48.6	55.8	65.9	73.8	76.5	65.7	61.6	68.5	79.3	81.6	75.5	74.1
Bottle-feeding	0.7	2.3	1.7	0.6	14.3	3.6	0.0	3.7	0.0	0.5	10.8	3.1
<b>D. Micronutrient consumption</b>												
<i>Vitamin A:</i>												
Children	34.4	32.1	24.3	31.3	50.0	34.0	33.1	28.8	21.5	35.8	57.7	34.9
<b>E. Tobacco and alcohol use</b>												
<i>Tobacco:</i>												
Women	na	na	na	na	na	na						
Men							na	na	na	na	na	na
<i>Alcohol:</i>												
Women	na	na	na	na	na	na						
Men							na	na	na	na	na	na
<b>F. Sexual practices</b>												
<i>Non-regular sexual partnerships:</i>												
Women	0.0	0.4	0.4	2.1	1.6	0.9						
Men							na	na	na	na	na	na
<i>Condom usage with non-regular partner:</i>												
Women	0.0	0.0	2.7	24.4	na	9.6						
Men							na	na	na	na	na	na

## Chad

## 2004 - FEMALE / MALE POPULATIONS

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles - Female						Wealth Quintiles - Male					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Education</b>												
<i>School completion:</i>												
Women	0.0	3.6	5.8	9.6	35.5	10.8						
Men							1.6	21.4	27.9	39.4	58.4	32.3
<i>School participation:</i>												
Girls	7.1	27.6	26.0	37.4	56.0	29.7						
Boys							10.3	40.3	31.4	48.6	64.1	38.6
<b>B. Exposure to mass media</b>												
<i>Newspaper readership:</i>												
Women	0.2	0.4	0.3	1.4	13.8	3.2						
Men							0.0	3.1	8.3	12.0	33.5	13.3
<i>Radio listenership:</i>												
Women	4.0	10.9	10.7	22.1	64.1	22.4						
Men							16.5	44.5	53.1	67.2	81.6	55.8
<i>Television viewership:</i>												
Women	0.4	1.1	1.1	1.3	22.5	5.3						
Men							1.3	4.8	6.5	8.4	39.3	14.3
<b>C. Knowledge and attitudes about HIV/AIDS</b>												
<i>Knowledge about sexual transmission of HIV/AIDS:</i>												
Women	26.0	43.1	43.9	54.0	55.8	44.6						
Men							69.1	73.9	59.3	68.4	78.5	70.5
<i>Knowledge about mother-to-child transmission of HIV/AIDS:</i>												
Women	15.2	51.6	57.0	63.1	73.0	51.9						
Men							37.4	70.6	63.6	68.4	78.5	65.6
<i>Attitudes toward HIV/AIDS:</i>												
Women	63.3	73.3	75.2	73.9	82.2	74.8						
Men							60.8	51.9	43.9	47.5	64.4	54.5
<b>D. Orphanhood</b>												
Paternal orphan prevalence	4.6	5.4	5.5	3.1	7.7	5.2	3.8	6.1	4.2	3.5	7.5	5.0
Maternal orphan prevalence	1.7	2.4	3.0	2.3	3.9	2.6	1.2	2.0	2.3	2.8	4.6	2.6
Double orphan prevalence	0.4	0.7	0.4	0.4	1.8	0.7	0.0	0.5	0.4	0.3	2.1	0.6

## Chad

## 2004 - RURAL / URBAN POPULATIONS

## Part I: HNP STATUS

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Childhood illness and mortality</b>												
Infant mortality rate	109.6	122.9	118.3	126.7	128.3	120.0	71.7	104.1	100.0	93.3	93.3	93.8
Under-five mortality rate	176.4	209.0	212.5	230.0	222.9	207.7	145.7	173.8	191.7	191.7	176.6	179.4
Prevalence of fever	26.6	38.7	32.2	38.1	32.3	34.1	18.4	44.5	46.3	35.3	34.5	35.2
Prevalence of diarrhea	19.8	31.9	27.8	27.6	29.8	27.3	7.3	28.2	25.9	18.7	26.7	25.2
Prevalence of acute respiratory infection	7.5	10.9	8.0	9.1	12.8	9.1	3.5	3.5	6.3	12.6	9.4	9.5
<b>B. Fertility</b>												
Total fertility rate	5.1	6.6	7.0	7.4	7.3	6.5	4.8	5.3	5.1	6.3	5.7	5.7
Adolescent fertility rate	139.4	222.5	226.0	195.6	174.7	195.0	89.0	143.8	185.3	165.1	162.2	162.6
<b>C. Nutritional status</b>												
<i>Children:</i>												
Moderate stunting	19.7	15.1	19.8	18.0	21.3	18.1	24.5	26.4	16.7	18.8	15.5	16.4
Severe stunting	31.1	23.8	24.9	21.3	18.8	24.9	18.5	18.3	27.6	19.8	14.3	15.9
Moderate underweight	27.6	23.0	22.5	21.0	19.0	23.2	19.7	21.7	32.7	23.4	19.3	20.6
Severe underweight	20.9	11.9	14.7	15.4	8.1	15.1	18.5	12.4	8.7	7.6	9.6	9.4
Mild anemia	na	na	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na	na	na
<i>Women:</i>												
Malnutrition	30.0	18.1	20.5	17.5	18.0	21.1	19.3	4.3	13.8	21.7	14.0	14.8
Mild anemia	na	na	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na	na	na
<b>D. Female circumcision</b>												
<i>Prevalence of circumcision:</i>												
Girls	47.1	24.6	13.8	10.1	7.2	25.1	64.3	49.4	20.2	27.4	20.3	22.9
Women	88.0	58.1	33.3	28.1	26.3	54.6	92.6	73.2	46.5	49.3	47.0	48.7
<i>Prevalence of occlusion:</i>												
Girls	4.5	3.6	0.0	8.9	0.0	4.1	3.0	8.9	9.4	3.6	4.0	4.5
Women	1.0	1.8	1.9	1.9	0.0	1.4	1.4	3.0	0.9	4.1	6.3	5.5
<b>E. Sexually transmitted disease</b>												
<i>Prevalence of genital discharge:</i>												
Women	4.1	4.8	2.2	3.7	6.8	3.9	2.3	5.8	1.8	4.5	7.6	6.8
Men	2.3	1.0	2.1	1.3	0.0	1.6	5.7	0.0	0.0	3.2	2.4	2.4
<i>Prevalence of genital ulcer:</i>												
Women	1.0	0.9	0.5	0.3	1.3	0.7	0.0	2.9	1.3	2.0	1.5	1.6
Men	0.6	1.0	0.9	2.5	0.0	1.2	5.7	0.0	0.0	0.3	1.3	1.2

## Chad

## 2004 - RURAL / URBAN POPULATIONS

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Childhood immunization</b>												
BCG coverage	13.6	33.1	42.1	41.5	43.3	33.3	31.1	76.1	37.1	56.3	73.2	68.2
Measles coverage	8.0	14.7	29.4	22.9	28.2	19.2	31.1	76.1	9.9	28.8	40.3	37.5
DPT coverage	4.5	13.9	17.1	21.5	25.6	14.9	31.1	25.4	20.6	28.5	46.0	41.2
Full basic coverage	0.8	6.8	13.0	12.5	20.3	8.9	31.1	16.8	3.5	11.4	24.3	20.9
No basic coverage	30.1	20.9	16.8	19.0	33.2	22.1	0.0	0.0	34.4	16.9	8.5	11.1
Hepatitis B coverage	na	na	na	na	na	na	na	na	na	na	na	na
Yellow fever coverage	na	na	na	na	na	na	na	na	na	na	na	na
<b>B. Treatment of childhood diseases</b>												
<i>Treatment of fever:</i>												
Medical treatment of fever	7.5	16.7	21.0	19.7	33.2	17.6	21.7	19.4	31.7	28.9	40.4	37.4
Treatment in a public facility	1.9	4.0	4.9	6.7	22.7	5.4	0.0	17.6	14.6	16.0	31.2	27.3
Treatment in a private facility	1.3	0.6	1.0	1.4	0.0	1.0	0.0	0.0	7.8	0.8	5.8	5.0
<i>Treatment of acute respiratory infection (ARI):</i>												
Medical treatment of ARI	7.5	4.8	5.5	8.1	18.4	7.0	0.0	22.7	30.3	15.7	21.0	20.2
Treatment in a public facility	1.9	2.2	0.0	0.0	18.4	2.2	0.0	22.7	30.3	10.4	17.2	16.3
Treatment in a private facility	4.7	0.0	0.0	3.0	0.0	1.5	0.0	0.0	0.0	0.0	1.9	1.4
<i>Treatment of diarrhea:</i>												
Use of oral rehydration therapy	15.0	39.8	31.4	42.5	44.0	34.8	0.0	58.2	48.6	41.7	51.0	49.9
Medical treatment of diarrhea	1.2	9.9	14.1	18.0	27.7	12.4	0.0	27.8	21.7	22.6	37.2	34.4
Treatment in a public facility	1.2	4.3	11.0	4.7	20.8	6.3	0.0	14.4	12.9	16.6	30.9	27.9
Treatment in a private facility	0.0	0.4	0.0	1.7	0.0	0.5	0.0	6.9	0.0	0.0	4.5	3.8
<b>C. Antenatal and delivery care</b>												
<i>Antenatal care visits:</i>												
To a medically trained person	8.9	29.8	41.8	51.4	48.9	33.8	39.1	59.5	71.0	70.3	84.1	80.5
To a doctor	0.3	0.9	2.5	3.3	1.0	1.7	0.0	2.4	1.8	2.8	7.7	6.5
To a nurse or trained midwife	8.6	28.9	39.4	48.1	47.9	32.1	39.1	57.0	69.2	67.5	76.4	74.0
Multiple visits to a medically trained person	4.8	19.4	26.3	35.5	35.3	22.2	20.9	38.8	50.2	51.8	71.2	66.1
<i>Antenatal care content:</i>												
Tetanus toxoid	11.5	33.7	37.9	49.4	44.3	33.9	36.3	51.5	68.1	67.3	79.1	75.8
Prophylactic antimalarial treatment	11.0	25.0	34.3	40.3	46.1	28.5	20.8	42.2	46.2	43.3	58.9	55.3
Iron supplementation	7.3	16.0	26.3	35.3	35.5	21.8	29.4	29.1	51.1	44.5	63.0	58.6
<i>Delivery attendance:</i>												
By a medically trained person	1.3	6.7	7.1	10.9	18.0	7.2	10.8	35.1	25.1	42.6	60.1	54.8
By a doctor	0.1	0.2	0.2	0.4	0.6	0.3	0.0	3.3	0.0	2.3	3.2	2.9
By a nurse or trained midwife	1.1	6.5	6.8	10.6	17.4	7.0	10.8	31.8	25.1	40.3	56.9	51.9
In a public facility	0.4	3.4	4.1	6.5	13.3	4.2	9.0	21.5	14.0	32.5	46.7	42.1
In a private facility	0.1	0.2	0.1	0.6	0.0	0.2	0.0	0.0	0.0	0.7	1.8	1.5
At home	97.8	94.0	94.2	90.4	83.0	93.4	91.0	75.2	76.7	64.5	49.5	54.0
<b>D. Contraceptive services</b>												
<i>Contraceptive prevalence:</i>												
Women	0.0	0.2	1.0	0.1	2.1	0.4	0.0	0.0	0.0	2.3	8.7	7.1
Men	0.0	2.0	2.5	5.1	0.0	2.4	0.0	0.0	0.0	7.0	16.9	15.0

## Chad

## 2004 - RURAL / URBAN POPULATIONS

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE (Cont.)

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>D. Contraceptive services (cont.)</b>												
<i>Source of contraception - public sector:</i>												
Women	43.1	55.5	100.0	66.7	na	59.8	48.0	64.5	na	na	na	63.8
Men	na	na	na	na	na	na	na	na	na	na	na	na
<i>Source of contraception - private sector:</i>												
Women	0.0	44.5	0.0	33.3	na	33.5	52.0	32.3	na	na	na	33.2
Men	na	na	na	na	na	na	na	na	na	na	na	na
<b>E. Treatment of adult illnesses</b>												
<i>Treatment of genital discharge, ulcer, sore:</i>												
Women	17.7	29.3	47.0	54.4	60.7	35.9	40.3	18.7	55.4	66.3	na	63.6
Men	12.3	100.0	66.9	71.8	na	61.3	100.0	100.0	52.9	na	na	57.1
<i>Treatment of genital discharge, ulcer, sore in public facilities:</i>												
Women	17.7	29.3	47.0	54.4	60.7	35.9	40.3	18.7	55.4	66.3	na	63.6
Men	12.3	100.0	66.9	71.8	na	61.3	100.0	100.0	52.9	na	na	57.1
<i>Voluntary counseling and testing for HIV/AIDS:</i>												
Women	0.2	0.6	0.0	1.7	1.2	0.6	0.0	0.0	1.3	1.9	9.1	7.4
Men	0.6	0.6	0.5	0.8	7.9	0.9	0.0	0.0	14.2	4.2	13.1	12.1

## Chad

## 2004 - RURAL / URBAN POPULATIONS

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Hygienic practices</b>												
<i>Disposal of children's stools:</i>												
Sanitary disposal	na	na	na	na	na	na	na	na	na	na	na	na
<i>Handwashing:</i>												
Wash hands prior to preparing food	na	na	na	na	na	na	na	na	na	na	na	na
Handwashing facilities in household	na	na	na	na	na	na	na	na	na	na	na	na
<b>B. Bednet ownership and use</b>												
<i>Bednet ownership:</i>												
Bednet ownership	73.4	47.3	60.3	64.2	71.8	61.2	75.0	49.8	46.8	66.3	84.2	78.4
Treated bednet ownership	na	na	na	na	na	na	na	na	na	na	na	na
<i>Bednet use:</i>												
By children	66.9	42.1	50.2	53.4	53.9	52.4	78.0	44.9	44.7	55.4	75.6	70.5
By pregnant women	na	na	na	na	na	na	na	na	na	na	na	na
<b>C. Breastfeeding</b>												
Exclusive breastfeeding	0.9	1.4	5.5	0.0	0.0	1.8	0.0	0.0	0.0	1.8	2.2	2.0
Timely complementary feeding	54.4	62.2	70.7	76.8	88.4	67.8	35.1	35.6	94.4	76.9	74.5	75.1
Bottle-feeding	0.4	3.0	0.7	0.0	0.0	1.2	0.0	0.0	0.0	3.3	15.2	12.3
<b>D. Micronutrient consumption</b>												
<i>Iodized salt:</i>												
Availability of iodized salt in household	34.4	70.8	75.3	81.5	85.8	64.1	21.8	66.6	61.8	64.6	76.9	73.3
<i>Vitamin A:</i>												
Children	33.5	30.3	21.8	31.7	32.7	29.4	57.4	40.3	42.6	45.1	58.9	55.7
Women	na	na	na	na	na	na	na	na	na	na	na	na
<b>E. Tobacco and alcohol use</b>												
<i>Tobacco:</i>												
Women	na	na	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na	na	na
<i>Alcohol:</i>												
Women	na	na	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na	na	na
<b>F. Sexual practices</b>												
<i>Non-regular sexual partnerships:</i>												
Women	0.0	0.4	0.5	1.8	1.7	0.7	0.0	1.0	0.0	4.2	1.6	1.9
Men	na	na	na	na	na	na	na	na	na	na	na	na
<i>Condom usage with non-regular partner:</i>												
Women	na	na	na	na	na	na	0.0	11.9	30.6	na	na	24.9
Men	na	na	na	na	na	na	na	na	na	na	na	na
<b>G. Domestic violence</b>												
Ever experienced violence	na	na	na	na	na	na	na	na	na	na	na	na
Experienced violence in past year	na	na	na	na	na	na	na	na	na	na	na	na

## Chad

## 2004 - RURAL / URBAN POPULATIONS

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Education</b>												
<i>School completion:</i>												
Women	0.0	3.3	5.3	8.6	19.7	4.8	1.3	13.3	12.7	15.7	39.1	33.4
Men	1.5	21.2	27.8	39.1	41.3	23.5	18.0	29.5	29.2	41.0	61.2	57.0
<i>School participation:</i>												
Girls	6.8	27.6	25.5	38.4	55.7	25.3	40.6	28.0	35.1	31.7	56.1	49.8
Boys	10.3	40.3	32.0	48.2	54.4	33.8	11.7	40.6	18.7	50.7	67.0	60.7
<b>B. Exposure to mass media</b>												
<i>Newspaper readership:</i>												
Women	0.2	0.3	0.3	1.4	3.5	0.7	0.0	2.1	1.3	1.4	16.0	12.7
Men	0.0	3.1	8.6	12.1	10.2	6.2	0.0	0.0	1.8	11.4	36.9	32.9
<i>Radio listenership:</i>												
Women	3.9	10.8	9.7	20.2	37.4	12.1	9.2	13.5	29.2	33.8	69.9	60.6
Men	16.3	45.2	53.3	66.6	70.7	47.1	30.7	5.9	50.3	71.7	83.2	79.9
<i>Television viewership:</i>												
Women	0.4	1.1	1.0	1.1	5.0	1.1	1.3	0.0	2.1	2.4	26.3	20.8
Men	1.3	4.7	6.5	6.6	24.7	5.8	0.0	9.1	6.6	21.2	41.4	37.9
<b>C. Knowledge and attitudes about HIV/AIDS</b>												
<i>Knowledge about sexual transmission of HIV/AIDS:</i>												
Women	25.8	43.1	43.2	54.0	48.4	41.5	40.0	43.2	56.8	54.2	57.4	56.3
Men	68.9	74.0	59.3	66.5	82.3	67.9	82.0	63.8	58.1	81.7	78.0	77.6
<i>Knowledge about mother-to-child transmission of HIV/AIDS:</i>												
Women	15.1	51.6	56.4	63.9	59.7	46.6	23.6	50.4	66.7	58.1	75.9	71.6
Men	37.8	70.8	63.1	68.7	82.6	61.9	5.7	54.5	75.1	66.2	77.9	75.9
<i>Attitudes toward HIV/AIDS:</i>												
Women	63.1	73.1	75.5	73.1	78.3	72.5	70.0	80.4	70.7	78.4	83.0	81.6
Men	60.8	51.8	43.8	44.6	48.6	50.0	60.4	56.4	45.7	66.4	66.8	66.0
<b>D. Status of women</b>												
<i>Household decisionmaking:</i>												
Can seek own health care	na	na	na	na	na	na	na	na	na	na	na	na
Can seek children's health care	na	na	na	na	na	na	na	na	na	na	na	na
Can make daily household purchases	na	na	na	na	na	na	na	na	na	na	na	na
Can make large household purchases	na	na	na	na	na	na	na	na	na	na	na	na
Can make meal-related decisions	na	na	na	na	na	na	na	na	na	na	na	na
<i>Freedom of movement:</i>												
Can travel to visit family, relatives	na	na	na	na	na	na	na	na	na	na	na	na
<i>Other decisionmaking, attitudes:</i>												
Can decide how to spend own money	46.8	48.9	52.0	50.9	46.5	49.6	85.0	86.3	92.0	83.3	93.3	91.5
Can decide whether to have sex	81.8	88.6	84.5	81.9	82.7	84.2	78.0	72.8	77.4	81.6	74.5	75.6
Justifies domestic violence	na	na	na	na	na	na	na	na	na	na	na	na
<b>E. Orphanhood</b>												
Paternal orphan prevalence	4.2	5.6	4.7	2.7	2.2	4.3	7.1	10.6	6.5	7.1	9.1	8.7
Maternal orphan prevalence	1.4	2.2	2.5	2.3	3.3	2.2	0.0	1.5	4.9	4.2	4.6	4.4
Double orphan prevalence	0.2	0.6	0.4	0.1	0.6	0.3	0.0	0.5	1.2	2.0	2.3	2.1



## **PART II. BASIC TABLES, 1996 / 97**

### **A. TOTAL POPULATION**

### **B. FEMALE AND MALE POPULATIONS**

### **C. RURAL AND URBAN POPULATIONS**

#### Notes:

- Each of the three sections referred to above consists of four divisions, presenting data for: I) hnp status; II) hnp service use; III) hnp-related individual and household behavior; and IV) other, underlying determinants of hnp status.
- Full definitions of all indicators covered in the tables are provided in section A of the technical notes found in part II.
- “na” appears in the table cells when data are not available, usually because the DHS survey concerned did not collect information about the indicator(s) in question.
- Figures in the tables shown within parentheses indicate the absence of adequate observations to produce acceptably reliable values. Asterisks appear when the number of observations was too small to justify the presentation even of figures within parentheses. (For further information, see the section on “Sampling Errors” in the presentation of data and methods in part II.B.) Asterisks also will be found in columns showing statistical indices of inequality when the amount of quintile-specific information available is inadequate to permit computation of the value for the index concerned.
- Female/male tables include only indicators relevant for both sexes; those pertaining to only one sex (e.g., fertility, women’s nutritional status, antenatal care, attended deliveries) have been omitted.



Chad  
1996 / 97 - TOTAL POPULATION

Part I: HNP STATUS

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>A. Childhood illness and mortality</b>										
Infant mortality rate	79.8	136.7	120.2	115.0	89.3	109.8	0.89	9.50	-0.0012	0.0013
Under-five mortality rate	170.6	227.8	224.5	203.5	172.0	201.1	0.99	1.40	-0.0068	0.0008
Prevalence of fever	29.5	32.1	30.7	35.3	32.9	32.1	0.90	3.40	0.0219	0.0103
Prevalence of diarrhea	18.9	21.4	21.7	24.2	21.4	21.5	0.88	2.50	0.0204	0.0130
Prevalence of acute respiratory infection	10.0	12.4	14.0	13.7	13.7	12.7	0.73	3.70	0.0411	0.0184
<b>B. Fertility</b>										
Total fertility rate	7.1	6.1	6.2	6.4	6.2	6.4	1.15	0.90	-0.0182	0.0003
Adolescent fertility rate	178.0	177.0	191.0	201.0	205.0	190.0	0.87	27.00	0.0333	0.0005
<b>C. Nutritional status (%)</b>										
<i>Children:</i>										
Moderate stunting	23.0	20.7	19.9	15.5	18.4	19.6	1.25	4.60	-0.0570	0.0152
Severe stunting	24.2	22.1	21.5	21.0	12.3	20.4	1.97	11.90	-0.1097	0.0140
Moderate underweight	28.1	24.8	26.5	23.0	21.8	24.9	1.29	6.30	-0.0439	0.0127
Severe underweight	21.4	14.5	13.5	12.0	7.0	13.9	3.06	14.40	-0.1853	0.0183
Mild anemia	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na
<i>Women:</i>										
Malnutrition	27.5	19.4	19.0	18.5	21.0	21.1	1.31	6.50	-0.0307	0.0188
Mild anemia	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na
<b>D. Female circumcision (%)</b>										
<i>Prevalence of circumcision:</i>										
Girls	na	na	na	na	na	na	na	na	na	na
Women	na	na	na	na	na	na	na	na	na	na
<i>Prevalence of occlusion:</i>										
Girls	na	na	na	na	na	na	na	na	na	na
Women	na	na	na	na	na	na	na	na	na	na
<b>E. Sexually transmitted disease</b>										
<i>Prevalence of genital discharge:</i>										
Women	0.2	0.1	0.3	0.6	0.6	0.3	0.33	0.40	0.2618	0.1135
Men	2.3	1.7	1.4	1.8	4.2	2.4	0.55	1.90	0.1981	0.0873
<i>Prevalence of genital ulcer:</i>										
Women	0.1	0.0	0.0	0.0	0.2	0.1	0.50	0.10	0.4175	0.3666
Men	0.6	1.1	1.0	0.6	1.7	1.1	0.35	1.10	0.2077	0.1457

## Chad

## 1996 / 97 - TOTAL POPULATION

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>A. Childhood immunization</b>										
BCG coverage	17.3	32.4	30.0	47.1	72.2	38.8	0.24	54.90	0.2921	0.0179
Measles coverage	12.0	18.0	16.4	32.1	38.5	22.8	0.31	26.50	0.2717	0.0300
DPT coverage	8.5	13.5	9.6	25.3	43.6	19.5	0.19	35.10	0.3912	0.0347
Full basic coverage	4.0	8.5	5.7	17.1	23.0	11.3	0.17	19.00	0.3904	0.0466
No basic coverage	65.4	50.8	48.9	33.0	18.7	44.5	3.50	46.70	-0.2141	0.0163
Hepatitis B coverage	na	na	na	na	na	na	na	na	na	na
Yellow fever coverage	12.0	18.9	20.0	33.8	42.8	24.7	0.28	30.80	0.2952	0.0283
<b>B. Treatment of childhood illnesses</b>										
<i>Treatment of fever:</i>										
Medical treatment of fever	1.7	6.2	6.8	10.4	15.7	8.2	0.11	14.00	0.3541	0.0431
Treatment in a public facility	0.2	3.0	0.8	5.1	12.1	4.4	0.02	11.90	0.6058	0.0714
Treatment in a private facility	1.5	3.2	6.0	5.3	3.3	3.8	0.45	1.80	0.0834	0.0548
<i>Treatment of acute respiratory infection:</i>										
Medical treatment of ARI	4.5	15.5	19.0	18.6	35.5	19.2	0.13	31.00	0.3230	0.0392
Treatment in a public facility	0.5	7.2	6.6	12.4	28.3	11.5	0.02	27.80	0.5380	0.0560
Treatment in a private facility	4.0	8.2	12.4	6.1	5.9	7.4	0.68	1.90	0.0305	0.0661
<i>Treatment of diarrhea:</i>										
Use of oral rehydration therapy	56.3	62.2	66.1	73.6	78.3	67.3	0.72	22.00	0.0658	0.0101
Medical treatment of diarrhea	8.7	18.6	14.8	21.3	32.6	19.5	0.27	23.90	0.2269	0.0311
Treatment in a public facility	3.7	7.3	5.4	10.0	26.5	10.6	0.14	22.80	0.4429	0.0499
Treatment in a private facility	5.0	11.3	9.4	11.3	5.9	8.9	0.85	0.90	-0.0258	0.0436
<b>C. Antenatal and delivery care</b>										
<i>Antenatal care visits:</i>										
To a medically trained person	11.2	19.9	25.8	40.9	71.1	32.6	0.16	59.90	0.3563	0.0111
To a doctor	0.3	0.2	1.1	2.8	6.2	2.0	0.05	5.90	0.7016	0.0752
To a nurse or trained midwife	10.9	19.8	24.8	38.1	64.9	30.7	0.17	54.00	0.3644	0.0113
Multiple visits to a medically trained person	8.0	13.4	18.1	30.7	59.4	24.9	0.13	51.40	0.4394	0.0136
<i>Antenatal care content:</i>										
Tetanus toxoid	11.1	20.3	23.4	37.9	68.9	31.3	0.16	57.80	0.3820	0.0110
Prophylactic antimalarial treatment	na	na	na	na	na	na	na	na	na	na
Iron supplementation	na	na	na	na	na	na	na	na	na	na
<i>Delivery attendance:</i>										
By a medically trained person	2.6	5.6	6.7	15.5	47.4	15.0	0.05	44.80	0.6657	0.0180
By a doctor	0.4	0.1	0.6	1.1	2.8	1.0	0.14	2.40	0.6420	0.0916
By a nurse or trained midwife	2.1	5.4	6.0	14.4	44.6	14.0	0.05	42.50	0.6672	0.0189
In a public facility	1.5	3.5	3.8	9.5	33.6	10.0	0.04	32.10	0.7301	0.0251
In a private facility	0.7	0.7	0.5	1.8	2.1	1.1	0.33	1.40	0.2452	0.0634
At home	97.2	94.2	94.2	87.1	63.7	87.6	1.53	33.50	-0.0835	0.0029

## Chad

## 1996 / 97 - TOTAL POPULATION

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE (Cont.)

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>D. Contraceptive services</b>										
<i>Contraceptive prevalence:</i>										
Women	0.1	0.2	0.1	1.0	4.8	1.2	0.02	4.70	0.9427	0.0995
Men	0.6	0.7	0.0	1.9	10.7	3.0	0.06	10.10	0.8614	0.1238
<i>Source of contraception - public sector:</i>										
Women	*	*	*	*	65.7	61.4	*	*	*	*
Men	na	na	na	na	na	na	na	na	na	na
<i>Source of contraception - private sector:</i>										
Women	*	*	*	*	34.3	38.6	*	*	*	*
Men	na	na	na	na	na	na	na	na	na	na
<b>E. Treatment of adult illnesses</b>										
<i>Treatment of genital discharge, ulcer, sore:</i>										
Women	*	*	*	*	*	(40.7)	*	*	*	*
Men	*	*	*	*	(59.9)	38.7	*	*	*	*
<i>Treatment of genital discharge, ulcer, sore in public facilities:</i>										
Women	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na
<i>Voluntary counseling and testing for HIV/AIDS:</i>										
Women	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na

## Chad

## 1996 / 97 - TOTAL POPULATION

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>A. Hygienic practices</b>										
<i>Disposal of children's stools:</i>										
Sanitary disposal	na	na	na	na	na	na	na	na	na	na
<i>Handwashing:</i>										
Wash hands prior to preparing food	na	na	na	na	na	na	na	na	na	na
Handwashing facilities in household	na	na	na	na	na	na	na	na	na	na
<b>B. Bednet ownership and use</b>										
<i>Bednet ownership:</i>										
Bednet ownership	na	na	na	na	na	na	na	na	na	na
Treated bednet ownership	na	na	na	na	na	na	na	na	na	na
<i>Bednet use:</i>										
By children	na	na	na	na	na	na	na	na	na	na
By pregnant women	na	na	na	na	na	na	na	na	na	na
<b>C. Breastfeeding</b>										
Exclusive breastfeeding	0.0	0.0	1.5	1.3	7.8	2.0	0.00	7.80	0.9031	0.2168
Timely complementary feeding	55.0	78.4	74.1	72.9	77.4	71.2	0.71	22.40	0.0437	0.0164
Bottle-feeding	0.4	0.0	1.5	1.6	11.9	3.0	0.03	11.50	1.0269	0.1242
<b>D. Micronutrient consumption</b>										
<i>Iodized salt:</i>										
Availability of iodized salt in household	55.3	60.1	58.6	62.6	77.4	62.8	0.71	22.10	0.0718	0.0053
<i>Vitamin A:</i>										
Children	0.5	0.3	1.1	1.9	1.0	0.9	0.50	0.50	0.1883	0.0756
Women	na	na	na	na	na	na	na	na	na	na
<b>E. Tobacco and alcohol use</b>										
<i>Tobacco:</i>										
Women	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na
<i>Alcohol:</i>										
Women	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na
<b>F. Sexual practices</b>										
<i>Non-regular sexual partnerships:</i>										
Women	0.3	0.2	0.4	0.8	0.8	0.5	0.38	0.50	0.3675	0.1046
Men	6.6	13.5	18.2	20.5	29.9	19.1	0.22	23.30	0.2321	0.0243
<i>Condom usage with non-regular partner:</i>										
Women	*	*	*	*	*	(13.8)	*	*	*	*
Men	0.0	8.6	15.0	13.6	43.9	24.6	0.00	43.90	0.4328	0.0434
<b>G. Domestic violence</b>										
Ever experienced violence	na	na	na	na	na	na	na	na	na	na
Experienced violence in past year	na	na	na	na	na	na	na	na	na	na

## Chad

## 1996 / 97 - TOTAL POPULATION

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles						Low/High Ratio	Low-High Diff. (Abs. Val.)	Concentration Index	
	Low	2nd	3rd	4th	High	Avg.			Value	Standard Errors
<b>A. Education</b>										
<i>School completion:</i>										
Women	0.5	1.0	1.5	5.7	27.0	6.9	0.02	26.50	0.8670	0.0312
Men	6.0	12.5	16.2	31.6	54.5	27.4	0.11	48.50	0.3969	0.0099
<i>School participation:</i>										
Girls	8.7	17.2	16.2	24.2	48.6	22.7	0.18	39.90	0.3612	0.0183
Boys	20.4	25.3	26.0	40.1	60.7	34.2	0.34	40.30	0.2553	0.0131
<b>B. Exposure to mass media</b>										
<i>Newspaper readership:</i>										
Women	0.4	0.8	1.6	3.6	18.4	4.7	0.02	18.00	0.8693	0.0402
Men	2.0	5.5	10.4	17.0	48.0	19.1	0.04	46.00	0.5696	0.0247
<i>Radio listenership:</i>										
Women	3.5	5.8	20.2	27.2	63.8	22.9	0.05	60.30	0.5658	0.0112
Men	7.6	9.0	37.3	43.4	79.8	38.8	0.10	72.20	0.4263	0.0111
<i>Television viewership:</i>										
Women	0.2	0.2	0.1	2.5	22.3	4.8	0.01	22.10	1.1514	0.0473
Men	0.0	0.7	0.3	2.6	38.7	10.7	0.00	38.70	1.0107	0.0479
<b>C. Knowledge and attitudes about HIV/AIDS</b>										
<i>Knowledge about sexual transmission of HIV/AIDS:</i>										
Women	28.1	41.7	45.2	62.9	85.2	52.2	0.33	57.14	0.2156	0.0053
Men	62.2	77.7	85.0	87.1	95.0	83.4	0.65	32.86	0.0641	0.0056
<i>Knowledge about mother-to-child transmission of HIV/AIDS:</i>										
Women	28.2	26.6	30.8	43.5	65.7	36.0	0.43	37.50	0.2802	0.0079
Men	41.2	39.9	43.0	46.4	67.6	47.7	0.61	26.40	0.1510	0.0120
<i>Attitudes toward HIV/AIDS:</i>										
Women	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na
<b>D. Status of women</b>										
<i>Household decisionmaking:</i>										
Can seek own health care	na	na	na	na	na	na	na	na	na	na
Can seek children's health care	na	na	na	na	na	na	na	na	na	na
Can make daily household purchases	na	na	na	na	na	na	na	na	na	na
Can make large household purchases	na	na	na	na	na	na	na	na	na	na
Can make meal-related decisions	na	na	na	na	na	na	na	na	na	na
<i>Freedom of movement:</i>										
Can travel to visit family, relatives	na	na	na	na	na	na	na	na	na	na
<i>Other decisionmaking, attitudes:</i>										
Can decide how to spend own money	41.6	49.2	54.9	68.2	84.3	58.0	0.49	42.70	0.1497	0.0065
Can decide whether to have sex	na	na	na	na	na	na	na	na	na	na
Justifies domestic violence	na	na	na	na	na	na	na	na	na	na
<b>E. Orphanhood</b>										
Paternal orphan prevalence	4.4	6.0	4.8	6.4	5.3	5.5	0.83	0.90	0.0354	0.0180
Maternal orphan prevalence	1.5	2.1	3.0	3.0	2.9	2.5	0.52	1.40	0.0962	0.0256
Double orphan prevalence	0.2	0.3	0.5	0.7	1.0	0.5	0.20	0.80	0.3050	0.0604



## Chad

## 1996 / 97 - FEMALE / MALE POPULATIONS

## Part I: HNP STATUS

Indicator	Wealth Quintiles - Female						Wealth Quintiles - Male					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Childhood mortality and morbidity</b>												
Infant mortality rate	74.5	119.1	109.1	111.1	82.4	100.0	85.6	153.9	130.8	119.0	96.2	119.6
Under-five mortality rate	165.1	208.0	210.5	194.5	164.4	189.0	176.4	247.2	237.5	212.6	179.5	213.1
Prevalence of fever	28.6	30.4	32.6	34.9	31.6	31.5	30.3	33.9	28.8	35.7	34.1	32.7
Prevalence of diarrhea	18.1	18.7	24.7	23.2	20.8	20.8	19.7	24.0	18.6	25.3	22.1	22.2
Prevalence of acute respiratory infection	9.7	12.0	14.2	13.6	13.5	12.5	10.3	12.8	13.7	13.8	14.0	12.9
<b>B. Nutritional status</b>												
<i>Children:</i>												
Moderate stunting	23.3	19.6	20.1	13.5	17.2	18.8	22.7	21.6	19.8	17.6	19.6	20.4
Severe stunting	24.7	22.6	20.2	21.6	11.9	20.5	23.6	21.7	22.8	20.3	12.8	20.4
Moderate underweight	26.5	24.1	25.9	21.8	21.0	23.9	29.6	25.4	27.0	24.3	22.6	25.8
Severe underweight	21.0	14.0	13.9	12.3	7.0	13.8	21.8	15.0	13.1	11.6	7.0	14.0
Mild anemia	na	na	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na	na	na
<b>C. Sexually transmitted disease</b>												
<i>Prevalence of genital discharge:</i>												
Women	0.2	0.1	0.3	0.6	0.6	0.3						
Men							2.3	1.7	1.4	1.8	4.2	2.4
<i>Prevalence of genital ulcer:</i>												
Women	0.1	0.0	0.0	0.0	0.2	0.1						
Men							0.6	1.1	1.0	0.6	1.7	1.1

## Chad

## 1996 / 97 - FEMALE / MALE POPULATIONS

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles - Female						Wealth Quintiles - Male					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Childhood immunization</b>												
BCG coverage	18.9	35.9	29.5	43.5	70.3	38.4	15.0	29.4	30.6	50.7	74.2	39.2
Measles coverage	12.0	15.5	14.1	27.4	37.2	20.5	12.0	20.1	19.1	36.6	39.9	25.2
DPT coverage	6.9	14.2	6.0	23.2	42.6	17.9	10.8	12.9	13.7	27.3	44.6	21.1
Full basic coverage	3.5	7.5	4.0	16.9	21.7	10.2	4.8	9.3	7.7	17.2	24.2	12.5
No basic coverage	63.4	43.6	53.7	40.0	20.9	45.2	68.1	57.0	43.3	26.0	16.3	43.8
Hepatitis B coverage	na	na	na	na	na	na	na	na	na	na	na	na
Yellow fever coverage	11.6	18.0	14.7	31.5	39.4	22.2	12.6	19.7	26.1	36.0	46.4	27.3
<b>B. Treatment of childhood illnesses</b>												
<i>Treatment of fever:</i>												
Medical treatment of fever	1.4	4.4	9.0	7.4	18.1	7.9	2.0	7.8	4.3	13.4	13.5	8.5
Treatment in a public facility	0.3	2.8	0.8	3.8	13.6	4.3	0.0	3.2	0.9	6.3	10.8	4.4
Treatment in a private facility	1.0	1.5	8.3	3.6	4.3	3.5	2.0	4.6	3.4	7.1	2.5	4.0
<i>Treatment of acute respiratory infection (ARI):</i>												
Medical treatment of ARI	3.1	12.4	19.0	11.3	36.2	16.8	5.8	18.3	19.0	25.9	34.9	21.4
Treatment in a public facility	1.0	3.2	5.2	9.1	30.5	10.1	0.0	11.0	8.2	15.9	26.2	12.9
Treatment in a private facility	2.1	9.2	13.8	2.3	5.1	6.6	5.8	7.3	10.9	10.0	6.8	8.1
<i>Treatment of diarrhea:</i>												
Use of oral rehydration therapy	57.4	59.0	64.3	69.5	78.1	65.6	55.3	64.8	68.5	77.5	78.6	69.0
Medical treatment of diarrhea	10.4	18.4	13.3	17.8	32.5	18.6	7.1	18.8	16.8	24.6	32.7	20.4
Treatment in a public facility	5.5	3.3	5.4	11.0	27.6	10.3	2.0	10.3	5.3	9.0	25.5	10.8
Treatment in a private facility	5.0	15.1	7.9	6.7	5.0	8.2	5.1	8.4	11.4	15.6	6.8	9.5
<b>C. Contraceptive services</b>												
<i>Contraceptive prevalence:</i>												
Women	0.1	0.2	0.1	1.0	4.8	1.2						
Men							0.6	0.7	0.0	1.9	10.7	3.0
<i>Source of contraception - public sector:</i>												
Women	*	*	*	*	65.7	61.4						
Men							na	na	na	na	na	na
<i>Source of contraception - private sector:</i>												
Women	*	*	*	*	34.3	38.6						
Men							na	na	na	na	na	na
<b>D. Treatment of adult illnesses</b>												
<i>Treatment of genital discharge, ulcer, sore:</i>												
Women	*	*	*	*	*	(40.7)						
Men							*	*	*	*	(59.9)	63.8
<i>Treatment of genital discharge, ulcer, sore in public facilities:</i>												
Women	na	na	na	na	na	na						
Men							na	na	na	na	na	na
<i>Voluntary counseling and testing for HIV/AIDS:</i>												
Women	na	na	na	na	na	na						
Men							na	na	na	na	na	na

## Chad

## 1996 / 97 - FEMALE / MALE POPULATIONS

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles - Female						Wealth Quintiles - Male					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Hygienic practices</b>												
<i>Disposal of children's stools:</i>												
Sanitary disposal	na	na	na	na	na	na						
<i>Handwashing:</i>												
Wash hands prior to preparing food	na	na	na	na	na	na						
Handwashing facilities in household	na	na	na	na	na	na						
<b>B. Bednet ownership and use</b>												
<i>Bednet use:</i>												
By children	na	na	na	na	na	na						
<b>C. Breastfeeding</b>												
Exclusive breastfeeding	0.0	0.0	0.0	1.0	11.0	2.6	0.0	0.0	(3.0)	(1.7)	3.5	1.4
Timely complementary feeding	(53.8)	(82.0)	(78.2)	74.8	75.8	73.6	55.7	(74.6)	(70.6)	(70.7)	78.9	69.1
Bottle-feeding	0.0	0.0	2.9	1.1	11.0	2.9	0.9	0.0	0.0	2.3	12.8	3.1
<b>D. Micronutrient consumption</b>												
<i>Vitamin A:</i>												
Children	0.2	0.2	2.0	1.6	0.7	0.8	0.7	0.4	0.3	2.2	1.3	0.9
<b>E. Tobacco and alcohol use</b>												
<i>Tobacco:</i>												
Women	na	na	na	na	na	na						
Men							na	na	na	na	na	na
<i>Alcohol:</i>												
Women	na	na	na	na	na	na						
Men							na	na	na	na	na	na
<b>F. Sexual practices</b>												
<i>Non-regular sexual partnerships:</i>												
Women	0.3	0.2	0.4	0.8	0.8	0.5						
Men							6.6	13.5	18.2	20.5	29.9	19.1
<i>Condom usage with non-regular partner:</i>												
Women	*	*	*	*	*	(13.8)						
Men							0.0	8.6	15.0	13.6	43.9	24.6

## Chad

## 1996 / 97 - FEMALE / MALE POPULATIONS

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles - Female						Wealth Quintiles - Male					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Education</b>												
<i>School completion:</i>												
Women	0.5	1.0	1.5	5.7	27.0	6.9						
Men							6.0	12.5	16.2	31.6	54.5	27.4
<i>School participation:</i>												
Girls	8.7	17.2	16.2	24.2	48.6	22.7						
Boys							20.4	25.3	26.0	40.1	60.7	34.2
<b>B. Exposure to mass media</b>												
<i>Newspaper readership:</i>												
Women	0.4	0.8	1.6	3.6	18.4	4.7						
Men							2.0	5.5	10.4	17.0	48.0	19.1
<i>Radio listenership:</i>												
Women	3.5	5.8	20.2	27.2	63.8	22.9						
Men							7.6	9.0	37.3	43.4	79.8	38.8
<i>Television viewership:</i>												
Women	0.2	0.2	0.1	2.5	22.3	4.8						
Men							0.0	0.7	0.3	2.6	38.7	10.7
<b>C. Knowledge and attitudes about HIV/AIDS</b>												
<i>Knowledge about sexual transmission of HIV/AIDS:</i>												
Women	28.1	41.7	45.2	62.9	85.2	52.2						
Men							62.2	77.7	85.0	87.1	95.0	83.4
<i>Knowledge about mother-to-child transmission of HIV/AIDS:</i>												
Women	28.2	26.6	30.8	43.5	65.7	36.0						
Men							41.2	39.9	43.0	46.4	67.6	47.7
<i>Attitudes toward HIV/AIDS:</i>												
Women	na	na	na	na	na	na						
Men							na	na	na	na	na	na
<b>D. Orphanhood</b>												
Paternal orphan prevalence	4.3	6.1	4.9	5.8	5.5	5.4	4.5	5.9	4.7	7.1	5.1	5.5
Maternal orphan prevalence	1.6	1.8	2.7	2.4	2.7	2.2	1.4	2.3	3.4	3.5	3.1	2.7
Double orphan prevalence	0.2	0.2	0.5	0.4	1.0	0.5	0.2	0.4	0.4	1.0	0.9	0.6

## Chad

## 1996 / 97 - RURAL / URBAN POPULATIONS

## Part I: HNP STATUS

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Childhood illness and mortality</b>												
Infant mortality rate	80.4	137.5	120.9	116.0	(59.9)	112.8	*	*	*	111.9	95.8	99.3
Under-five mortality rate	171.5	229.4	222.1	200.3	(128.9)	204.2	*	*	*	211.7	181.3	190.1
Prevalence of fever	29.3	32.2	30.4	37.2	30.5	32.0	(35.6)	28.6	37.4	29.0	33.4	32.6
Prevalence of diarrhea	18.8	21.5	21.5	23.8	22.1	21.3	(22.2)	15.9	25.3	25.7	21.3	22.2
Prevalence of acute respiratory infection	9.9	12.5	13.9	14.9	15.3	12.7	(13.3)	7.9	15.4	10.1	13.4	12.6
<b>B. Fertility</b>												
Total fertility rate	7.2	6.1	6.2	6.7	*	6.5	*	*	*	(5.7)	6.0	5.9
Adolescent fertility rate	177.0	177.0	192.0	221.0	*	189.9	*	*	*	(148.0)	203.0	189.4
<b>C. Nutritional status</b>												
<i>Children:</i>												
Moderate stunting	22.7	20.8	19.8	15.0	22.6	20.1	(36.6)	(16.4)	23.2	16.9	17.3	17.8
Severe stunting	24.2	21.8	21.7	21.9	13.1	22.0	(22.0)	(34.5)	18.3	18.0	12.1	14.5
Moderate underweight	28.2	24.7	26.9	23.3	22.0	25.6	(24.4)	(29.1)	18.3	22.2	21.7	22.0
Severe underweight	21.3	14.2	13.5	11.6	6.5	15.0	(26.8)	(27.3)	13.4	13.2	7.1	9.7
Mild anemia	na	na	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na	na	na
<i>Women:</i>												
Malnutrition	27.1	19.0	18.6	16.5	15.1	20.3	*	*	(27.3)	24.4	22.4	24.0
Mild anemia	na	na	na	na	na	na	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na	na	na	na	na	na	na
<b>D. Female circumcision</b>												
<i>Prevalence of circumcision:</i>												
Girls	na	na	na	na	na	na	na	na	na	na	na	na
Women	na	na	na	na	na	na	na	na	na	na	na	na
<i>Prevalence of occlusion:</i>												
Girls	na	na	na	na	na	na	na	na	na	na	na	na
Women	na	na	na	na	na	na	na	na	na	na	na	na
<b>E. Sexually transmitted disease</b>												
<i>Prevalence of genital discharge:</i>												
Women	0.1	0.1	0.2	0.6	1.2	0.3	(2.2)	1.4	1.9	0.7	0.5	0.7
Men	2.4	1.7	1.2	1.2	(2.2)	1.6	*	*	(3.6)	3.3	4.5	4.1
<i>Prevalence of genital ulcer:</i>												
Women	0.1	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Men	0.6	1.2	0.8	0.0	0.0	0.7	*	*	(3.6)	2.0	1.9	1.9

## Chad

## 1996 / 97 - RURAL / URBAN POPULATIONS

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Childhood immunization</b>												
BCG coverage	16.9	31.9	27.7	41.7	(60.5)	30.4	*	*	*	66.3	75.5	71.4
Measles coverage	11.3	17.9	15.4	29.5	(34.2)	18.6	*	*	*	40.9	39.7	38.9
DPT coverage	7.7	13.5	6.9	23.5	(36.8)	13.8	*	*	*	31.6	45.5	41.6
Full basic coverage	4.1	8.8	5.4	16.7	(21.1)	9.0	*	*	*	18.4	23.5	20.5
No basic coverage	66.2	51.4	51.5	36.4	(26.3)	51.3	*	*	*	21.0	16.5	17.8
Hepatitis B coverage	na	na	na	na	na	na	na	na	na	na	na	na
Yellow fever coverage	11.8	19.1	18.5	32.6	(34.2)	20.2	*	*	*	37.9	45.3	42.0
<b>B. Treatment of childhood diseases</b>												
<i>Treatment of fever:</i>												
Medical treatment of fever	1.4	6.2	6.9	9.7	12.1	6.3	*	*	(5.9)	13.3	16.5	15.1
Treatment in a public facility	0.0	3.0	0.9	3.7	6.9	2.2	*	*	0.0	10.5	13.3	11.8
Treatment in a private facility	1.4	3.2	6.0	6.0	5.2	4.0	*	*	(5.9)	2.8	2.9	3.0
<i>Treatment of acute respiratory infection (ARI):</i>												
Medical treatment of ARI	4.1	15.4	18.9	15.0	(17.2)	13.9	*	*	*	35.4	40.7	38.0
Treatment in a public facility	0.0	7.1	6.6	8.4	(10.3)	6.1	*	*	*	31.3	33.4	31.2
Treatment in a private facility	4.1	8.3	12.3	6.5	(6.9)	7.9	*	*	*	4.2	5.7	5.6
<i>Treatment of diarrhea:</i>												
Use of oral rehydration therapy	56.0	62.5	66.5	74.3	(73.8)	64.8	*	*	*	71.7	79.5	76.0
Medical treatment of diarrhea	8.2	18.6	14.0	22.2	(23.8)	16.4	*	*	*	18.5	34.9	30.2
Treatment in a public facility	3.3	7.1	4.3	8.2	(16.7)	6.4	*	*	*	15.3	29.0	25.0
Treatment in a private facility	4.9	11.5	9.8	14.0	(7.1)	10.0	*	*	*	3.3	5.6	5.0
<b>C. Antenatal and delivery care</b>												
<i>Antenatal care visits:</i>												
To a medically trained person	10.8	19.4	23.7	36.1	58.3	22.9	(25.8)	(41.9)	62.3	55.0	73.9	67.5
To a doctor	0.3	0.1	0.9	2.4	7.5	1.0	0.0	(2.3)	4.3	3.8	5.9	5.2
To a nurse or trained midwife	10.5	19.3	22.8	33.7	50.8	21.8	(25.8)	(39.5)	58.0	51.1	68.0	62.3
Multiple visits to a medically trained person	7.6	13.2	16.9	27.0	49.2	16.6	(25.8)	(23.3)	39.1	41.3	61.7	54.6
<i>Antenatal care content:</i>												
Tetanus toxoid	10.8	20.0	21.6	32.5	62.5	22.1	(22.6)	(34.9)	55.1	53.5	70.3	64.2
Prophylactic antimalarial treatment	na	na	na	na	na	na	na	na	na	na	na	na
Iron supplementation	na	na	na	na	na	na	na	na	na	na	na	na
<i>Delivery attendance:</i>												
By a medically trained person	2.2	5.2	5.5	11.0	23.8	6.4	(21.7)	24.3	27.6	29.4	52.8	45.6
By a doctor	0.5	0.1	0.6	1.0	1.5	0.5	0.0	0.0	1.9	1.6	3.1	2.6
By a nurse or trained midwife	1.7	5.0	5.0	10.1	22.3	5.9	(21.7)	24.3	25.7	27.8	49.6	43.0
In a public facility	1.2	3.0	3.1	5.9	12.1	3.5	(17.4)	24.3	17.1	20.4	38.5	33.2
In a private facility	0.6	0.7	0.4	1.9	2.9	1.0	(2.2)	0.0	1.0	1.4	1.9	1.8
At home	97.5	94.6	94.9	90.5	83.0	94.1	(78.3)	75.7	81.0	76.4	59.3	64.5
<b>D. Contraceptive services</b>												
<i>Contraceptive prevalence:</i>												
Women	0.0	0.2	0.1	0.8	2.0	0.3	(2.7)	0.0	0.0	1.7	5.4	4.2
Men	0.6	0.7	0.0	0.7	(9.7)	0.9	*	*	*	5.5	10.8	9.4

## Chad

## 1996 / 97 - RURAL / URBAN POPULATIONS

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE (Cont.)

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>D. Contraceptive services (cont.)</b>												
<i>Source of contraception - public sector:</i>												
Women	*	*	*	*	*	*	*	*	*	*	68.3	67.2
Men	na	na	na	na	na	na	na	na	na	na	na	na
<i>Source of contraception - private sector:</i>												
Women	*	*	*	*	*	*	*	*	*	*	31.7	32.8
Men	na	na	na	na	na	na	na	na	na	na	na	na
<b>E. Treatment of adult illnesses</b>												
<i>Treatment of genital discharge, ulcer, sore:</i>												
Women	*	*	*	*	*	*	*	*	*	*	*	*
Men	*	*	*	*	*	*	*	*	*	*	(57.5)	(54.0)
<i>Treatment of genital discharge, ulcer, sore in public facilities:</i>												
Women	na	na	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na	na	na
<i>Voluntary counseling and testing for HIV/AIDS:</i>												
Women	na	na	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na	na	na

## Chad

## 1996 / 97 - RURAL / URBAN POPULATIONS

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Hygienic practices</b>												
<i>Disposal of children's stools:</i>												
Sanitary disposal	na	na	na	na	na	na	na	na	na	na	na	na
<i>Handwashing:</i>												
Wash hands prior to preparing food	na	na	na	na	na	na	na	na	na	na	na	na
Handwashing facilities in household	na	na	na	na	na	na	na	na	na	na	na	na
<b>B. Bednet ownership and use</b>												
<i>Bednet ownership:</i>												
Bednet ownership	na	na	na	na	na	na	na	na	na	na	na	na
Treated bednet ownership	na	na	na	na	na	na	na	na	na	na	na	na
<i>Bednet use:</i>												
By children	na	na	na	na	na	na	na	na	na	na	na	na
By pregnant women	na	na	na	na	na	na	na	na	na	na	na	na
<b>C. Breastfeeding</b>												
Exclusive breastfeeding	0.0	0.0	1.6	0.0	*	0.6	*	*	*	(4.7)	8.4	6.8
Timely complementary feeding	54.8	79.2	75.0	72.7	*	70.3	*	*	*	(73.2)	77.2	74.6
Bottle-feeding	0.5	0.0	1.5	0.6	(2.1)	0.7	*	*	*	4.7	14.4	11.1
<b>D. Micronutrient consumption</b>												
<i>Iodized salt:</i>												
Availability of iodized salt in household	56.1	60.8	58.9	63.2	77.6	60.5	(19.4)	33.9	52.8	60.8	77.3	70.6
<i>Vitamin A:</i>												
Children	0.5	0.3	1.2	2.3	0.6	0.9	0.0	0.0	0.0	0.7	1.1	0.9
Women	na	na	na	na	na	na	na	na	na	na	na	na
<b>E. Tobacco and alcohol use</b>												
<i>Tobacco:</i>												
Women	na	na	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na	na	na
<i>Alcohol:</i>												
Women	na	na	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na	na	na
<b>F. Sexual practices</b>												
<i>Non-regular sexual partnerships:</i>												
Women	0.3	0.2	0.3	0.8	0.0	0.3	0.0	0.0	0.9	0.8	1.0	0.9
Men	6.5	13.5	18.2	16.7	43.1	15.4	*	(16.0)	(18.2)	30.2	28.2	27.7
<i>Condom usage with non-regular partner:</i>												
Women	*	*	*	*	0.0	*	*	*	*	*	*	(30.7)
Men	0.0	8.9	14.3	10.8	27.3	12.5	*	0.0	(25.0)	17.5	47.2	40.2
<b>G. Domestic violence</b>												
Ever experienced violence	na	na	na	na	na	na	na	na	na	na	na	na
Experienced violence in past year	na	na	na	na	na	na	na	na	na	na	na	na

## Chad

## 1996 / 97 - RURAL / URBAN POPULATIONS

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles - Rural						Wealth Quintiles - Urban					
	Low	2nd	3rd	4th	High	Avg.	Low	2nd	3rd	4th	High	Avg.
<b>A. Education</b>												
<i>School completion:</i>												
Women	0.3	0.9	1.3	3.4	18.4	2.1	(8.2)	5.7	5.1	12.0	29.0	23.2
Men	6.0	12.3	15.1	28.9	50.5	17.5	(7.1)	16.9	35.6	39.3	55.1	50.6
<i>School participation:</i>												
Girls	8.6	17.1	16.0	22.2	40.0	17.1	*	(20.9)	(20.0)	30.5	51.1	43.6
Boys	20.3	25.8	26.3	40.3	56.8	28.9	*	(10.8)	(20.0)	39.7	61.6	52.9
<b>B. Exposure to mass media</b>												
<i>Newspaper readership:</i>												
Women	0.3	0.7	1.4	2.4	10.4	1.5	(2.0)	1.2	5.1	6.6	20.1	15.6
Men	2.0	5.3	8.4	15.8	37.3	8.9	*	(12.0)	(38.6)	20.1	49.5	42.7
<i>Radio listenership:</i>												
Women	3.5	5.7	20.5	25.4	52.6	13.7	(2.0)	10.6	15.4	31.7	66.2	53.6
Men	7.5	8.9	38.3	43.2	78.4	25.6	*	(12.0)	(22.7)	43.8	80.0	69.3
<i>Television viewership:</i>												
Women	0.2	0.2	0.1	1.7	7.8	0.8	0.0	0.0	0.0	4.7	25.3	18.4
Men	0.0	0.7	0.3	1.8	25.5	1.8	*	0.0	0.0	4.5	40.4	31.3
<b>C. Knowledge and attitudes about HIV/AIDS</b>												
<i>Knowledge about sexual transmission of HIV/AIDS:</i>												
Women	82.8	81.9	86.0	83.8	95.8	83.9	90.0	92.9	94.9	91.1	93.0	92.6
Men	89.4	96.6	96.8	94.6	100.0	95.2	*	(96.0)	(97.7)	97.9	97.3	97.3
<i>Knowledge about mother-to-child transmission of HIV/AIDS:</i>												
Women	14.9	26.4	30.1	40.7	60.9	28.6	34.0	35.3	42.8	50.7	66.8	60.6
Men	30.7	39.4	42.9	45.5	68.6	41.2	*	(56.0)	(45.5)	48.8	67.5	62.8
<i>Attitudes toward HIV/AIDS:</i>												
Women	na	na	na	na	na	na	na	na	na	na	na	na
Men	na	na	na	na	na	na	na	na	na	na	na	na
<b>D. Status of women</b>												
<i>Household decisionmaking:</i>												
Can seek own health care	na	na	na	na	na	na	na	na	na	na	na	na
Can seek children's health care	na	na	na	na	na	na	na	na	na	na	na	na
Can make daily household purchases	na	na	na	na	na	na	na	na	na	na	na	na
Can make large household purchases	na	na	na	na	na	na	na	na	na	na	na	na
Can make meal-related decisions	na	na	na	na	na	na	na	na	na	na	na	na
<i>Freedom of movement:</i>												
Can travel to visit family, relatives	na	na	na	na	na	na	na	na	na	na	na	na
<i>Other decisionmaking, attitudes:</i>												
Can decide how to spend own money	40.9	48.4	53.1	64.0	78.1	51.8	(67.6)	77.4	78.1	79.0	86.2	82.9
Can decide whether to have sex	na	na	na	na	na	na	na	na	na	na	na	na
Justifies domestic violence	na	na	na	na	na	na	na	na	na	na	na	na
<b>E. Orphanhood</b>												
Paternal orphan prevalence	4.3	5.9	4.5	5.8	3.2	5.1	7.2	10.1	9.5	8.4	5.9	6.7
Maternal orphan prevalence	1.5	2.2	3.0	3.4	3.6	2.5	3.2	1.0	2.8	1.7	2.7	2.5
Double orphan prevalence	0.2	0.3	0.4	0.8	0.6	0.4	0.0	0.0	0.8	0.2	1.1	0.8



## **PART III. TECHNICAL NOTES**

- A. INDICATOR DEFINITIONS**
- B. DATA AND METHODS**
- C. DISCUSSION**



## INDICATOR DEFINITIONS

### Part I: HNP STATUS

#### A. CHILDHOOD MORTALITY AND ILLNESS <sup>2</sup>

*Infant mortality rate:* number of deaths to children under 12 months of age per 1,000 live births, based on experience during the ten years preceding the survey.

*Under-five mortality rate:* number of deaths to children under five years of age per 1,000 live births, based on experience during the ten years preceding the survey.

*Prevalence of fever:* percent of children who had fever, whether or not accompanied by cough or rapid breathing, in the two weeks before the survey.

*Prevalence of diarrhea:* percent of children who had diarrhea in the two weeks before the survey.

*Prevalence of acute respiratory infection:* percent of children who had a cough accompanied by rapid or difficult breathing in the two weeks before the survey.

#### B. FERTILITY

*Total fertility rate (TFR):* average number of births a woman could expect to have during her lifetime if she followed the levels of fertility currently observed at every age. The TFR is calculated as the sum of average annual age-specific fertility rates for all reproductive age groups (usually 15-49 years) in the three years before the survey.

*Adolescent fertility rate:* age-specific fertility rate for women 15-19 years of age. This is the average number of births among women aged 15-19 years per 1,000 women in that age group, based on births in the three years before the survey and expressed as annual averages.

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<sup>2</sup> Figures for the prevalence of fever, diarrhea, and acute respiratory infection refer to percent of children under three, four, or five years of age, depending upon the country. (The specific ages covered for in particular country may be determined by consulting the full report on that country's DHS, which may be found at: [www.measuredhs.com/countries](http://www.measuredhs.com/countries).)

## C. NUTRITIONAL STATUS

### Children<sup>3, 4, 5</sup>

*Moderate stunting (height-for-age):* percent of children with a height-for-age Z-score of between –2 and –3 standard deviations of the median reference standard for their age (as defined in fn. 4).

*Severe stunting (height-for-age):* percent of children with a height-for-age Z-score of below –3 standard deviations of the median reference standard for their age (as defined in fn. 4).

*Moderate underweight (weight-for-age):* percent of children with a weight-for-age Z-score of between –2 and –3 standard deviations of the median reference standard for their age (as defined in fn. 4).

*Severe underweight (weight-for-age):* percent of children with a weight-for-age Z-score of below –3 standard deviations of the median reference standard for their age (as defined in fn. 4).

*Mild anemia:* percent of children with a hemoglobin level of between 10.0g/dl and 10.9 g/dl, the World Health Organization criterion for mild anemia.

*Moderate anemia:* percent of children with a hemoglobin level of between 7.0g/dl and 9.9g/dl, the World Health Organization criterion for moderate anemia.

*Severe anemia:* percent of children with a hemoglobin level of below 7.0g/dl, the World Health Organization criterion for severe anemia.

### Women<sup>6, 7</sup>

*Malnutrition:* percent of women aged 15-49 years with a Body Mass Index (BMI) of less than 18.5, where BMI – commonly used to indicate adult nutritional status – is defined as weight in kilograms divided by the square of height in meters.

*Mild anemia:* percent of women aged 15-49 years with a hemoglobin level of between 10.0g/dl and 10.9g/dl for pregnant women and between 10.0g/dl and 11.9g/dl for non-pregnant women, the World Health Organization criterion for mild anemia.

*Moderate anemia:* percent of women aged 15-49 years with a hemoglobin level of between 7.0g/dl and 9.9g/dl, the World Health Organization criterion for moderate anemia.

*Severe anemia:* percent of women aged 15-49 years with a hemoglobin level of less than 7.0g/dl, the World Health Organization criterion for severe anemia.

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<sup>3</sup> All figures related to children's nutrition status refer to children under three, four, or five years of age, depending upon the country. (The specific ages covered for in particular country may be determined by consulting the full report on the DHS of the country concerned, which is available at: [www.measuredhs.com/countries](http://www.measuredhs.com/countries).)

<sup>4</sup> The reference standards used for stunting and underweight are those established in the 1970s by the World Health Organization, the U.S. Centers for Disease Control, and the U.S. National Center for Health Statistics. Updated stunting and underweight figures based on the recently-released, 2006 World Health Organization reference standards are currently under preparation. When complete, they will be available at: [www.worldbank.org/povertyandhealth/countrydata](http://www.worldbank.org/povertyandhealth/countrydata).

<sup>5</sup> The anemia figures for children living at an altitude above 1,000 meters have been adjusted to reflect the higher level of hemoglobin required.

<sup>6</sup> In some countries, the BMI is presented for all women; in others, the figure is available only for mothers of children under five years of age. The reference population for any given country can be determined by consulting the full report on the DHS for the country concerned. An electronic version of this report is located at: [www.measuredhs.com/countries](http://www.measuredhs.com/countries).

<sup>7</sup> Anemia cut-off points for respondents who live at an altitude above 1,000 meters and/or who smoke have been adjusted to account for their higher hemoglobin requirements.

## **D. FEMALE CIRCUMCISION**

### **Prevalence of Circumcision**

*Girls:* percent of women aged 15-49 years with one or more daughters, at least one of whom had been circumcised.

*Women:* percent of women aged 15-49 years who had been circumcised.

### **Prevalence of Occlusion**

*Girls:* percent of women aged 15-49 years with one or more daughters, at least one of whom had been circumcised with the vaginal area sewn closed.

*Women:* percent of women aged 15-49 years whose vaginal area had been sewn closed.

## **E. SEXUALLY TRANSMITTED DISEASES**

### **Prevalence of Genital Discharge**

*Women:* percent of women aged 15-49 years who had had abnormal genital discharge in the twelve months before the survey.

*Men:* percent of men aged 15-54 years who had had abnormal genital discharge in the twelve months before the survey.

### **Prevalence of Genital Ulcer or Sore**

*Women:* percent of women aged 15-49 years who had had a genital ulcer or sore in the twelve months before the survey.

*Men:* percent of men aged 15-54 years who had had a genital ulcer or sore in the twelve months before the survey.

## **Part II: INTERMEDIATE DETERMINANTS OF HNP STATUS – HEALTH SERVICE USE**

### **A. CHILDHOOD IMMUNIZATION <sup>8</sup>**

*BCG coverage:* percent of children who had received a dose of BCG vaccine by the time of the survey.

*Measles coverage:* percent of children who had received a dose of measles vaccine by the time of the survey.

*DPT coverage:* percent of children who had received three doses of DPT vaccine by the time of the survey.

*Full basic coverage:* percent of children who had received a dose of BCG vaccine, measles vaccine, and three doses of DPT and polio vaccines by the time of the survey, excluding polio vaccine given at birth.

*No basic coverage:* percent of children who had received no vaccination against the six early-childhood diseases (TB, measles, polio, diphtheria, pertusis, and tetanus) by the time of the survey.

*Hepatitis B coverage:* percent of children who had received three doses of hepatitis B vaccine by the time of the survey.

*Yellow fever coverage:* percent of children who had received a dose of yellow fever vaccine by the time of the survey.

### **B. TREATMENT OF CHILDHOOD ILLNESSES <sup>9</sup>**

#### **Treatment of Fever**

*Medical treatment of fever:* percent of children with fever, with or without cough or rapid breathing, in the two weeks before the survey who had sought medical advice for fever from any health facility or health provider, whether public or private.

*Treatment in a public facility:* percent of children with fever, with or without cough or rapid breathing, in the two weeks before the survey who had sought medical advice for fever from a public-sector health facility or provider (as defined in fn. 9).

*Treatment in a private facility:* percent of children with fever, with or without cough or rapid breathing, in the two weeks before the survey who had sought medical advice for fever from a private-sector health facility or provider (as defined in fn. 9).

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<sup>8</sup> Childhood immunization figures refer to rates among children 12-23 months of age in all countries except those in Latin America and the Caribbean. There, the figures refer to rates among children 18-29 months of age. All figures are based on information recorded on the child's vaccination card; or, in cases where a card was not seen by the interviewer, on the mother's report.

<sup>9</sup> Figures for illness treatment in a public facility refer to treatment in government hospitals, health centers, health posts, or dispensaries; or in facilities operated by government-affiliated social securing programs. Figures for treatment in private facilities cover treatment in private hospitals or clinics, in private doctors' offices, or in facilities operated by other private medical providers (such as non-governmental organizations) as defined in the country concerned; but exclude treatment obtained in private pharmacies or shops.

### **Treatment of Acute Respiratory Infection (ARI)**

*Medical treatment of ARI:* percent of children with a cough and rapid breathing in the two weeks before the survey who had been taken for treatment at any medical facility or provider, whether public or private.

*Treatment in a public facility:* percent of children with a cough and rapid breathing in the two weeks before the survey who had been taken for treatment at a public-sector health facility or provider (as defined in fn. 9).

*Treatment in a private facility:* percent of children with a cough and rapid breathing in the two weeks before the survey who had been taken for treatment at a private-sector health facility or provider (as defined in fn. 9).

### **Treatment of Diarrhea**

*Use of oral rehydration therapy:* percent of children with diarrhea in the two weeks before the survey who had received oral rehydration therapy (ORT) (defined as including consumption of oral rehydration salts, other recommended home fluids, or other increased liquids).

*Medical treatment of diarrhea:* percent of children with diarrhea in the two weeks before the survey who had been taken for treatment at any medical facility or provider, whether public or private.

*Treatment in a public facility:* percent of children with diarrhea in the two weeks before the survey who had been taken for treatment at a public-sector health facility or provider (as defined in fn. 9).

*Treatment in a private facility:* percent of children with diarrhea in the two weeks before the survey who had been taken for treatment at a private-sector health facility or provider (as defined in fn. 9).

## **C. ANTENATAL AND DELIVERY CARE <sup>10</sup>**

### **Antenatal Care (ANC) Visits**

*To a medically-trained person:* percent of women with one or more births in the five years before the survey who had received at least one antenatal care consultation from a medically-trained person (as defined in fn. 10) before her most recent birth.

*To a doctor:* percent of women with one or more births in the five years before the survey who had received at least one antenatal care consultation from a doctor before her most recent birth.

*To a nurse or trained midwife:* percent of women with one or more births in the five years before the survey who had received at least one antenatal care consultation from a nurse or trained midwife (as defined in fn. 10) before her most recent birth.

*Multiple visits to a medically-trained person:* percent of women with one or more births in the five years before the survey who had received at least three antenatal care consultations from any medically-trained provider (as defined in fn. 10) before her most recent birth.

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<sup>10</sup> When speaking of antenatal and delivery care, medically-trained persons are defined as doctors, nurses, and trained midwives. The definition excludes traditional midwives or other traditional birth attendants, whether trained or untrained.

### **Antenatal Care (ANC) Content**

*Tetanus toxoid:* percent of women with one or more births in the five years before the survey who had received at least one tetanus toxoid injection during her most recent pregnancy.

*Prophylactic antimalarial treatment:* percent of women with one or more births in the five years before the survey who had received prophylactic treatment with any anti-malarial drug during her most recent pregnancy.

*Iron supplementation:* percent of women with one or more births in the five years before the survey who had taken iron tablets during her most recent pregnancy.

### **Delivery Attendance**

*By a medically-trained person:* percent of births in the five years before the survey attended by a medically-trained person (as defined in fn. 10).

*By a doctor:* percent of births in the five years before the survey attended by a doctor.

*By a nurse or trained midwife:* percent of births in the five years before the survey attended to by a nurse or a trained midwife (as defined in fn. 10).

*In a public facility:* percent of all deliveries in the five years before the survey occurring in a public-sector health facility (as defined in fn. 9).

*In a private facility:* percent of all deliveries in the five years before the survey occurring in a private-sector health facility (as defined in fn. 9).

*At home:* percent of all deliveries in the five years before the survey occurring at home (defined as the woman's own or any other home).

## **D. CONTRACEPTIVE SERVICES**

### **Contraceptive Prevalence**<sup>11</sup>

*Women:* percent of married or in-union women aged 15-49 years who used any modern means of contraception (as defined in fn. 11).

*Men:* percent of married or in-union men aged 15-54 years who used any modern means of contraception (as defined in fn. 11).

### **Source of Contraception - Public Sector**

*Women:* percent of married women who obtained their current method of contraception from a public-sector health facility or provider (as defined in fn. 9).

*Men:* percent of married men who obtained their current method of contraception from a public-sector health facility or provider (as defined in fn. 9).

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<sup>11</sup> Figures refer to use of modern means of contraception, defined as male/female sterilization, oral contraceptive pill, contraceptive injection, intrauterine device, male/female condom, diaphragm, cervical cap, contraceptive jelly or foam, implant, or some country-specific modern method.

### **Source of Contraception - Private Sector**

*Women:* percent of married women who obtained their current method of contraception from a private-sector health facility or provider (as defined in fn. 9, except that private pharmacies and shops are included rather than excluded).

*Men:* percent of married women who obtained their current method of contraception from a private-sector health facility or provider (as defined in fn. 9, except that private pharmacies and shops are included rather than excluded).

### **E. TREATMENT OF ADULT ILLNESSES**

#### **Treatment of Genital Discharge, Ulcer, or Sore**

*Women:* percent of women with genital discharge, ulcer, or sore who sought any medical treatment for resulting symptoms.

*Men:* percent of men with genital discharge, ulcer, or sore who sought any medical treatment for resulting symptoms.

#### **Treatment of Genital Discharge, Ulcer, or Sore in a Public Facility**

*Women:* percent of women with genital discharge, ulcer, or sore who sought treatment from a public-sector health facility or provider (as defined in fn. 9).

*Men:* percent of men with genital discharge, ulcer, or sore who sought treatment from a public-sector health facility or provider (as defined in fn. 9).

#### **Voluntary Counseling and Testing for HIV/AIDS**

*Women:* percent of women aged 15-49 years who had been tested for HIV at any time before the survey.

*Men:* percent of men aged 15-54 years who had been tested for HIV at any time before the survey.

## **Part III: INTERMEDIATE DETERMINANTS OF HNP STATUS – INDIVIDUAL AND HOUSEHOLD BEHAVIOR**

### **A. HYGIENIC PRACTICES**

#### **Disposal of Children’s Stools**

*Sanitary disposal:* percent of mothers with at least one child under five years of age who disposed of the stools of their youngest child in a sanitary manner (defined as dropping stool into a latrine, burying it, or using disposable diapers).

#### **Handwashing**

*Wash hands prior to preparing food:* percent of women aged 15-49 years preparing meals who washed hands before handling food.

*Handwashing facilities in household:* percent of households that had hand-washing materials or facilities, as determined by direct observation of interviewers.

### **B. BEDNET OWNERSHIP AND USE**

#### **Bednet Ownership**

*Bednet ownership:* percent of households owning one or more bednets.

*Treated bednet ownership:* percent of households owning one or more bednets that had recently been treated with insecticides.

#### **Bednet Use**

*By children:* percent of households with at least one child under five years of age, some or all of whom had slept under a bednet the night before the survey.

*By pregnant women:* percent of currently pregnant women who had slept under a bednet the night before the survey.

### **C. BREASTFEEDING**

*Exclusive breastfeeding:* percent of children 0-3 months of age who had received only breast milk in the 24 hours before the survey.

*Timely complementary feeding:* percent of children 6-9 months of age who had received breast milk and solid or semi-solid foods in the twenty-four hours before the survey.

*Bottle-feeding:* percent of children under 12 months of age who had received any food or drink from a bottle with a nipple in the twenty-four hours before the survey.

## **D. MICRONUTRIENT CONSUMPTION**

### **Iodized Salt**

*Availability of iodized salt in household:* percent of households with cooking salt testing positive for iodine/iodate at the recommended level of 15 or 25 parts per million or more (depending on the country).<sup>12</sup>

### **Vitamin A**

*Children:* percent of children<sup>13</sup> who had received at least one dose of vitamin A in the six months before the survey, as reported by the mothers.

*Women:* percent of women who had received a dose of vitamin A within two months of the last birth, in the five years before the survey.

## **E. TOBACCO AND ALCOHOL USE**

### **Tobacco**<sup>14</sup>

*Women:* percent of women aged 15-49 years who currently were smoking or chewing tobacco products.

*Men:* percent of men aged 15-54 years who currently were smoking or chewing tobacco products.

### **Alcohol**

*Women:* percent of women aged 15-49 years who had gotten intoxicated due to excessive consumption of alcohol in the three months before the survey.

*Men:* percent of men aged 15-54 years who had gotten intoxicated due to excessive consumption of alcohol in the three months before the survey.

## **F. SEXUAL PRACTICES**

### **Non-Regular Sexual Partnerships**

*Women:* percent of women aged 15-49 years who had had sex with a non-regular partner at least once in the twelve months before the survey.

*Men:* percent of men aged 15-54 years who had had sex with a non-regular partner at least once in the twelve months before the survey.

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<sup>12</sup> Which of these two levels is recommended in any particular country may be determined by consulting the full report on that country's DHS, which may be found at: [www.measuredhs.com/countries](http://www.measuredhs.com/countries).

<sup>13</sup> Figures refer to children over six months of age and under three, four, or five years of age, depending upon the country. (The specific ages covered for in a particular country may be determined by consulting the full report on that country's DHS, which is available at: [www.measuredhs.com/countries](http://www.measuredhs.com/countries).)

<sup>14</sup> Tobacco products include cigarettes, pipes, cigars, leaves, etc.

**Condom Usage with Non-Regular Partner**

*Women:* percent of women aged 15-49 years with non-regular sexual partner who had used a condom in the last sexual intercourse with such a partner in the twelve months before the survey.

*Men:* percent of men aged 15-54 years with non-regular sexual partner who had used a condom in the last sexual intercourse with such a partner in the twelve months before the survey.

**G. DOMESTIC VIOLENCE**

*Ever experienced violence:* percent of women aged 15-49 years who had ever been hit or beaten by current or former husband/partner.

*Experienced violence in past year:* percent of women aged 15-49 years who had been hit or beaten by current or former husband/partner in the twelve months before the survey.

## **Part IV: UNDERLYING DETERMINANTS OF HNP STATUS**

### **A. EDUCATION**

#### **School Completion**

*Women:* percent of women aged 15-49 years who had completed the fifth grade.

*Men:* percent of men aged 15-54 years who had completed the fifth grade.

#### **School Participation**

*Girls:* percent of girls aged 6-10 years who were attending school at the time of the survey.

*Boys:* percent of boys aged 6-10 years who were attending school at the time of the survey.

### **B. EXPOSURE TO MASS MEDIA**

#### **Newspaper Readership**

*Women:* percent of women aged 15-49 years who read a newspaper at least once a week.

*Men:* percent of men aged 15-54 years who read a newspaper at least once a week.

#### **Radio Listenership**

*Women:* percent of women aged 15-49 years who listened to radio at least once a week.

*Men:* percent of men aged 15-54 years who listened to radio at least once a week.

#### **Television Viewership**

*Women:* percent of women aged 15-49 years who watched television at least once a week.

*Men:* percent of men aged 15-54 years who watched television at least once a week.

### **C. KNOWLEDGE AND ATTITUDES ABOUT HIV/AIDS**

#### **Knowledge about Sexual Transmission of HIV/AIDS**<sup>15</sup>

*Women:* percent of women aged 15-49 years who knew of HIV/AIDS and of at least one of the following ways to avoid it through interruption of its sexual transmission route: abstinence; using a condom; avoiding multiple sex partners, sex with prostitutes, and unprotected homosexual sex.

*Men:* percent of men aged 15-54 years who knew of HIV/AIDS and of at least one of the ways to avoid HIV/AIDS referred to in the preceding definition.

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<sup>15</sup> In most countries, the survey sample included both married and unmarried individuals. Where this was the case, all respondents, regardless of marital status, were asked the question covered in this section. Where the survey covered only individuals who were or had been married, the data pertain only to individuals who had ever been married. (The marital status of people covered for in particular country is indicated in the full report on that country's DHS, which is located at: [www.measuredhs.com/countries](http://www.measuredhs.com/countries).)

### **Knowledge about Mother-to-Child Transmission of HIV/AIDS**

*Women:* percent of women aged 15-49 years who knew of at least one way HIV/AIDS can be transmitted from mother to child during pregnancy, delivery, or breastfeeding.

*Men:* percent of men aged 15-54 years who knew of at least one way HIV/AIDS can be transmitted from mother to child during pregnancy, delivery, or breastfeeding.

### **Attitudes toward HIV/AIDS**

*Women:* percent of women aged 15-49 years who believed that people with HIV/AIDS should be allowed to continue working or that HIV test results should remain confidential.

*Men:* percent of men aged 15-54 years who believed that people with HIV/AIDS should be allowed to continue working or that HIV test results should remain confidential.

## **D. STATUS OF WOMEN**

### **Household Decisionmaking**

*Can seek own health care:* percent of women age 15-49 years who could decide by themselves to seek their own health care.

*Can seek children's health care:* percent of women aged 15-49 years, whose children live with them, who could decide by themselves to seek health care for their children.

*Can make daily household purchases:* percent of women aged 15-49 years who could decide by themselves or jointly with others to make daily household purchases.

*Can make large household purchases:* percent of women aged 15-49 years who could decide by themselves or jointly with others to make large household purchases.

*Can make meal-related decisions:* percent of women aged 15-49 years who could decide by themselves what food to cook daily.

### **Freedom of Movement**

*Can travel to visit family, relatives:* percent of women aged 15-49 years who could decide by themselves to visit family and relatives.

### **Other Decisionmaking, Attitudes**

*Can decide how to spend own money:* percent of women aged 15-49 years who work for cash who could decide by themselves on how to use the money they earn.

*Can decide whether to have sex:* percent of women aged 15-49 years agreeing that they can refuse to have sex with their husband for at least one of the following reasons: he has a sexually-transmitted disease; he has had sexual relations with another woman; or the woman is tired, not in mood, or recently has given birth.

*Justify domestic violence:* percent of women aged 15-49 years believing that a husband/male partner would be justified in beating his wife/female partner for at least one of the following reasons: he suspects her of being unfaithful; she argues with him; she goes out without telling him; she neglects the children; she burns the food; or other, country-specific reasons (for example, she shows disrespect for her in-laws or her family does not give the expected dowry).

## **E. ORPHANHOOD**

*Maternal orphan prevalence:* percent of children under 15 years of age whose natural mother had died before the survey.

*Paternal orphan prevalence:* percent of children under 15 years of age whose natural father had died before the survey.

*Double orphan prevalence:* percent of children under 15 years of age both of whose natural parents had died before the survey.



## **DATA AND METHODS**

Any assessment of the figures featured in this report requires an appreciation of how they were prepared. The first need is to understand the basic features of the data and methods employed.

### **A. SOURCE OF FIGURES**

The figures appearing in this report are all derived from data collected under the Demographic and Health Surveys (DHS) program conducted by ORC Macro, with support from the U.S. Agency for International Development and other external assistance organizations. Large DHS household surveys have been carried out, usually at periodic intervals, in approximately seventy-five countries across Africa, Asia, Latin America, the Middle East, and the former Soviet Union.<sup>16</sup> This series of reports covers the fifty-six of those countries that had one or more DHS surveys undertaken since 1990, for which data were publicly available as of June 2006. (Annex C is a list of the countries for which reports have been prepared.)

In each country, the DHS program has gathered information on a large number of indicators about health, nutrition, and population (hnp) status and service use; about relevant behaviors of household members; and about household characteristics like those described below. It has done this through a set of questionnaires, similar in all countries, to collect data at the individual, household, and community levels.

The data presented here draw on responses to the individual and household questionnaires. In most cases, they are based on responses from women or other family members interviewed. The principal exceptions concern nutritional status, which is based on anthropometric measurement; immunization, which typically relies to the extent possible on record cards maintained at the household level; and those other items where a source other than interviewer response is specifically identified.

### **B. MEASUREMENT OF ECONOMIC STATUS**

#### **Wealth or Asset Approach**

Economic status has been expressed in terms of wealth or assets: specifically, on the basis of information about household characteristics gathered through the DHS household questionnaire. (Such information was normally provided for at least 25-30, and often many more, characteristics like the presence, availability, or use of a fan, radio receiver, or automobile; housing materials like wood or concrete flooring, tile or tin roofing, or cement block walls; superior sources of water like piped or a protected well; and other attributes related to economic status.)

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<sup>16</sup> Further information about the DHS program is available at the program's website: [www.measuredhs.com](http://www.measuredhs.com).

## **Index Construction**

A single, consolidated index of living standards<sup>17</sup> was constructed by using principal components analysis (PCA) to generate a weight for each household item with available information. A wealth index score was calculated for each household by weighting the response with respect to each item pertaining to that household by the coefficient of the first principal component as determined by application of principal components analysis, and summing the results. The resulting household scores were standardized in relation to a standard normal distribution with a mean of zero and a standard deviation of one.

All individuals usually present in each household were assigned the household's standardized wealth index score, and all individuals in the sample population were ranked according to that score. The sample population was then divided into quintiles of individuals, with all individuals in a single household being assigned to the same quintile.

The same standardized household wealth index scores originally derived for the total population sample, as just described, were also used in preparing the disaggregated estimates for female and male members of the sample population, and for rural and urban residents. In preparing those disaggregated estimates, the entire population sample was divided into quintiles of individuals; the females and males, and the rural and urban residents in each quintile of the entire sample were then separated from one another; and the mean for each of the ten resulting subgroups (five female, five male; or five rural, five urban) was calculated.

This procedure was carried out separately for each of the surveys covered.

## **C. CALCULATION AND PRESENTATION OF RATES**

### **Use of Sampling Weights**

Rates for all health, nutrition, and population indicators are calculated after applying the DHS sampling weights. (DHS surveys often over-sample certain small subgroups of interest – residents of a particular geographic area, for example – in order to get sample sizes large enough to produce statistically-significant results. The DHS sampling weights are used to compensate for such over-sampling in order to ensure that the results are representative of the population as a whole and not just of the DHS sample.)

### **Calculation of Total Population Averages**

The average for the total population presented alongside the quintile-specific rates for each indicator is calculated without reference to quintile divisions. It thus equals the weighted mean of the quintile rates, with the weight assigned to each quintile rate being the proportion of the number of individuals at risk (as defined on p. 59) for the indicator concerned.

### **Sampling Errors**

Information needed to assess the statistical significance of differences among the quintile-specific rates is presented in three ways:

- First, in all the basic tables presented in part I, rates are shown in parentheses or replaced by asterisks in cases where the standard error is likely to be unacceptably high because

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<sup>17</sup> Such an index is usually referred to as either an “asset index” or a “wealth index.” The two expressions are used interchangeably in this report; for ease of communication, “wealth index” appears more frequently despite the inexact correspondence between the items included in the index's construction and those appearing in more conventional, financially-based definitions of wealth.

of small sample size. The number of observations used to determine how to present the data for the different indicators covered were as follows:

Indicator	Unit of measure	Number of observations used to determine how quintile-specific rate was presented		
		<i>Without parentheses</i>	<i>With parentheses</i>	<i>Replaced by asterisk</i>
Infant and child mortality	Number of deaths	>500	250-499	<250
Total and adolescent fertility	Number of births	>250	125-249	<125
All other indicators	Number of individuals	>50	25-49	<25

- Second, the standard error for each quintile-specific rate (except for any rate replaced by an asterisk) appearing in the total population table is provided in part III.B. (Standard errors for the quintile-specific rates presented in the female-male and rural-urban tables are not available.)

- Third, the right-hand column of the total population table provides the standard error for the concentration index, one of the measures of inequality shown, as indicated below.

#### D. MEASUREMENT OF INEQUALITY

Accompanying each of the indicators presented in the total population table are the values for three statistical measures of inequality:

- *Low/High Quintile Ratio*: the ratio between the rate prevailing in the lowest (poorest) population quintile and that found in the highest (least poor) quintile.

- *Low-High Quintile Difference*: the value of the lowest quintile minus the value of the highest, expressed as an absolute value.

- *Concentration Index*: twice the area in a Lorenz-type diagram between the line of equality and the concentration curve for the indicator in question, the curve being the graph of the cumulative share of the indicator against the cumulative share in the asset distribution. (The value, which can range from -1 to +1, is negative when the hnp indicator is higher among the poor (e.g., fertility), positive when it is higher among the better-off (e.g., modern contraceptive use), and zero when on balance the indicator shows no systematic relationship with wealth.)<sup>18</sup>

<sup>18</sup> Adam Wagstaff, Pierella Paci, and Eddy van Doorslaer, "On the Measurement of Inequalities of Health," *Social Science and Medicine* 33 (1991): 545-57. (See also chapter eight in the volume by O'Donnell, van Doorslaer, Wagstaff, and Lindelow described in the annotated bibliography that constitutes annex A.)



## DISCUSSION

While a basic understanding of the data and methods employed is necessary to adequately appreciate the figures appearing in this report, it is not sufficient. For the application of the approach taken involves many subtleties that also need to be understood. Among the more important are:

### A. DESCRIPTIVE NATURE OF THE RELATIONSHIPS

The hnp-poverty relationships shown in this report are no more than descriptive. They should not be taken to imply any direct causal relationships, for several reasons.

One reason is the possibility that it is not wealth or asset possession *per se* that determine a person's health condition. Rather, the determining factors could be other characteristics (such as education or ethnic background) that are simultaneously associated with both asset ownership and health status.

It is also possible that the health-poverty relationships shown are driven primarily by particular items included in the index (e.g., water and sanitation). Should this be the case, improvements in health conditions among the poor might be more effectively brought about by focusing on changing those particular components of the wealth index rather than by a general effort to increase economic status as measured by the index as a whole.

### B. IMPLICATIONS OF A WEALTH/ASSET APPROACH

#### Wealth or Assets as a Measure of Economic Status

Reliance on a wealth index to measure economic status is a rather recent development in research on economic disparities, where such status traditionally has been defined in terms of consumption or income. The principal reason for the choice of the wealth index is pragmatic rather than conceptual: the DHS surveys, which are of interest because of the plethora of hnp information that they contain, do not collect consumption or income data; but they do have detailed information on households' physical characteristics, and on the household-level presence of and access to a wide range of goods and services. While there is some disagreement about the relative merits of using such wealth/asset information or consumption data to measure economic status, several recent studies suggest that the asset-consumption relationship is quite close.<sup>19</sup> To the extent this is the case, an index of wealth or asset possession/availability can be taken as a

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<sup>19</sup> See, for example, Deon Filmer and Lant H. Pritchett, "Estimating Wealth Effects without Expenditure – or Tears: An Application to Educational Enrollments in States of India," *Demography* 38, no. 1 (February 2001): 115-32; Shea Rutstein and Kiersten Johnson, *The DHS Wealth Index*, DHS Comparative Reports No. 6 (Calverton, Maryland, USA: ORC Macro, August 2004) esp. 10-14; Adam Wagstaff and Naoko Watanabe, "What Difference Does the Choice of SES Make in Health Inequality Measurement?" *Health Economics* 12 (2003): 885-90.

reasonably satisfactory proxy for consumption, rather than or in addition to serving as an indicator of economic status in its own right.

### **C. ECONOMIC STATUS AS A MEASURE OF SOCIO-ECONOMIC WELL-BEING**

Like consumption or income, a wealth index defines disparities that are primarily economic. This is by no means the only way to define inter-group inequalities that are of potential concern. Other possibilities include gender, place of residence, education, ethnic background, or other factors associated with social exclusion. Thus the economic perspective provides only a partial view of the multidimensional concepts of poverty, inequality, and inequity.

By including tables on female-male and rural-urban inequalities, this report pays adequate attention to two of inequality's other important dimensions to justify the use of the term "socio-economic" rather than simply "economic" in its title. However, the centrality of tabulations based on the wealth index means that the primary focus is on the economic dimension. The justification for this lies not in the greater importance of economic considerations, but rather in the recently-improved ability to analyze and thus begin dealing with them. Until the development of the wealth/asset approach, the assessment of economic status had been based on consumption, expenditures, or income, all of which are far more difficult to measure than such other, non-economic dimensions of inequality as gender, ethnic identity, educational level, and place of residence. As a result, assessments of health inequalities by economic status had lagged well behind measurements in terms of these other dimensions, especially gender and education. The focus on inequality's economic aspect applied here represents an effort to redress this imbalance.

### **D. INDEX CONSTRUCTION**

#### **Choice of Items**

Use of a wealth index requires decisions about which items to include in it. In the case of secondary analyses like the one featured in this report, the choice is limited to those items included in the data sets being used. But even with this constraint, there nonetheless remains considerable room for choice, given the large number of items for which information is collected by the DHS.

The decision made in preparing this report was to include all items in each DHS household questionnaire that relate to ownership of household goods; to dwelling unit construction and characteristics; and to access to services and resources like electricity, water, and sanitation facilities. Also included were other potential indicators of wealth, such as live-in domestic servants. This decision, admittedly somewhat arbitrary, has both advantages and disadvantages.

The principal advantage is practical: use of a large number of assets increases the degree of variation across household asset scores and facilitates a more regular distribution of individuals across quintiles. It also reduces the possibility of subjectivity in selecting only some of the variables for inclusion on some *a priori* basis; and it may increase a wealth index's accuracy as a proxy for consumption.

However, including all variables is far from satisfying conceptually. For example, it means failing to discriminate with respect to the items' differing natures. It is not clear, for instance, whether access to water, sanitation, electricity, or other publicly-provided resources should be included in an index that purports to measure private household wealth.

Further, many items that are candidates for inclusion in a DHS-based wealth index might be seen as directly influencing health status: water and sanitation for infant and child mortality, for

example. It would be desirable to include quintile-specific estimates for such items; but to the extent that such items have large index coefficients, any estimates for those items would be suspect. Such items appear to be relatively few and of limited statistical significance in the index used here. However, for the sake of caution, quintile-specific estimates for items appearing in the index have nonetheless been excluded from the basic tables and appear only in supporting table III.C

Additional issues arise when comparing the findings for two different points in time covered in the basic tables. Because the nature and number of asset questions included in DHS surveys has been evolving, the items included in the wealth index differ somewhat for each of the surveys reported upon. As such, the results presented in the basic tables might differ to some extent from findings produced by some other approach, such as including in the index only those items appearing in each survey covered.

### **Weighting of Items**

A further decision required in construction of an index concerns the weight to attach to each of the respective items. As noted earlier, the method used in this report is principal components analysis (PCA).

Adoption of this method was based on the findings, referred to earlier, that its use resulted in outcomes that approximated reasonably well those produced by taking a consumption or expenditure approach. Further, it often provides greater discrimination in economic status than does the use of consumption/expenditures. It has also emerged as the standard approach for use in analyses of the sort presented here, so that its adoption is largely non-controversial.

Yet this choice, too, is not without an arbitrary aspect; for alternative plausible methods exist. Examples include the “inverse possession” approach, which gives more weight to items possessed by only a few and less to those possessed by many;<sup>20</sup> or, perhaps, the common practice of simply assigning the same weight to each index item.

Also, the weights for any particular item vary from survey to survey, since the weights were determined separately for the population of each survey included in the basic tables. The results thus produced can be expected to differ from those generated in some other manner, such as generating common weights for all the surveys covered by pooling the data sets.

### **Use of Principal Components Analysis with Dichotomous Variables**

An additional issue concerns the use of a technique like PCA, developed for use with continuous variables, in the construction of an index based primarily on dichotomous variables. While legitimate in principle, any reservations in this regard are of limited practical consequence, since the considerable experimentation undertaken in preparation for the tabulations presented here indicated that any inaccuracy introduced by applying PCA to the analysis of the dichotomous values used is minimal.

### **Economies of Scale**

Calculating the values for a household wealth index also requires a decision concerning economies of scale that exist in the households covered. The calculations presented here assume complete economies of scale. The implicit assumption is that additional members do not add to household expenses on items included in the index.

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<sup>20</sup> Saul S. Morris et al., “Validity of Rapid Estimates of Household Wealth and Income for Health Surveys in Rural Africa,” *Journal of Epidemiology and Community Health* 54 (2000): 381-87.

## **E. DEFINITION OF QUINTILES**

### **Quintiles of Individuals**

As noted earlier, the quintile-specific figures presented in this report refer to quintiles of individuals in the household population. Such quintiles need to be distinguished from quintiles of households or quintiles of only those people in the population who are “at risk”: that is, subject to the particular condition, eligible for the particular service, or capable of behaving in a particular way (children born alive for infant and under-five mortality, for example; or adult men and women for condom use or non-regular sexual partnerships).

The expression of findings in terms of quintiles of individuals has several implications:

- Because fertility is often higher in lower economic households than among better-off ones, the number of individuals per household will frequently be larger among the poor than among higher-income groups. In such cases, the number of households will vary systematically across quintiles of individuals, and the results expressed in terms of quintiles of households can differ significantly from those presented here.

- The proportion of individuals “at risk” with regard to a particular indicator is also likely to vary across quintiles in many cases. (For example, in cases where fertility is higher among poor people, a higher-than-average proportion of poor populations will consist of newborns at risk from infant mortality, young children subject to malnutrition, and pregnant women for whom antenatal care is relevant.) To facilitate the work of any investigators wishing to undertake calculations based on people at risk, the number of such people in each quintile of individuals is shown in part III.A.

- As previously indicated, the population average figure provided for each indicator is equivalent to the weighted sum of the quintile rates for that indicator, where the weight assigned to each quintile rate is the number of people at risk in each quintile as presented in part III.A. As a result of this weighting, the population average will usually differ from a simple mean of the population quintile estimates.

### **Quintiles of Males and Females, of Rural and Urban Residents**

As also reported in the data and methods section, the tables on rural and urban residents and on men and women were prepared using the same asset scores as for the total population; and rural-urban residents and females-males were separated from one another only after the entire sample had been disaggregated into quintiles of individuals. This means that the figures given in the rural-urban and female-male tables refer to females-males and rural-urban residents belonging to each quintile of individuals in the total population, as distinct from quintiles of females, of males, of rural residents, or of urban residents alone.

The consequence of this distinction is particularly evident with regard to rural and urban residents. Since rural residents tend to be poorer than urban dwellers, they normally form a considerably higher proportion of individuals in the lower economic quintiles of the total population than in the higher ones. Conversely, urban residents tend to be concentrated in the higher economic groups. As a result, the number of individuals in each of the urban and rural quintiles usually varies greatly and systematically; and when this is the case, the figures presented in the rural-urban tables can differ significantly from those produced by a computation procedure that places the same number of rural and urban residents in each rural quintile or each urban quintile. (The results may also differ significantly from application of an approach featuring the separate calculation of index values for urban and for rural groups. While such separate index values may well be preferable conceptually, their calculation involves complexities that prevented their preparation for this report.)

## **F. COMPARISON OF QUINTILES ACROSS COUNTRIES**

Reliance on population quintiles as basic presentational format for the data appearing in this report implicitly incorporates a relative concept of poverty. This differs from an absolute concept of poverty under which the population would be divided into groups of different sizes according to some absolute standard of living (such as people earning less than one dollar a day, between one and two dollars a day, and more than two dollars a day).

This means that, when comparing values of an indicator among people in a given quintile across countries, the comparison is between groups of people whose economic status can be quite different. The lowest quintile of a Latin American population, for example, will usually be considerably better-off than the lowest quintile in an African country.

## **G. COMPARISON OF QUINTILES OVER TIME**

Another implication is that the wealth status of any given quintile within a particular country is likely to change over time. For instance, when a country is progressing economically, the wealth of the households in the population will tend to increase. This will raise the average asset score in most, possibly all population quintiles. As a result, the living standard enjoyed by individuals in any quintile covered by a recent survey is likely to be higher than that of individuals in that same quintile as measured in a prior survey.

## **H. STATISTICAL INDICATORS OF INEQUALITY**

The available statistical indicators of inequality are far too numerous to permit use of more than a small proportion of them in presenting the findings featured in this report. The three indicators employed have been selected to provide a wide range of perspectives. Two are designed for ease of understanding, the third for greater technical accuracy.

The low/high quintile ratio and low-high quintile difference are the two presented for ease of understanding. The former is a relative measure, the latter an absolute measure that can produce a significantly different impression from that provided by the former.

The concentration index is provided for the benefit of technical specialists wishing greater accuracy. It measures the degree of inequality in an hnp indicator across the full wealth index distribution, rather than differences between only two of the five quintiles, and also reflects the relative size of the different asset-based divisions of the study population.

## **I. COMPARABILITY WITH OTHER REPORTS**

Tabulations similar to those presented here can also be found in the initial series of hnp/poverty country reports, issued in 2000, and in the recent country reports issued by the DHS program. The figures presented in those reports normally resemble quite closely those appearing here for any given indicator; but there are often slight differences for one or more of several reasons. The most common is a difference in the definition of the indicator in question. (These differences are usually small and subtle. But there is one important exception: the definition of moderate malnutrition among children. In the 2000 reports, this was defined as second and third degree malnutrition taken together. Here, it is defined as second degree malnutrition alone.) Another reason, with respect to infant and child mortality, is that the figures in the DHS documents are typically based on experience during the five years before the survey in question, rather than

during the ten previous years as in this report. A further frequent reason is the use of an improved computational technique.

In addition, asset-based, quintile-specific tabulations of hnp indicators have begun to appear in an increasing number of other documents. Given the basic similarity of approach, such tabulations usually produce results that are generally congruent with those shown in part I of this report. However, significant divergences have occasionally been reported; and the absence of adequately detailed information about data and methods often prevents any fully-satisfying understanding of the approaches used. As a result, occasional doubts and frequent uncertainties about approach comparability remain.

## **PART IV. SUPPORTING TABLES, 2004**

- A. SAMPLE SIZES**
- B. STANDARD ERRORS**
- C. ASSET DISTRIBUTION AND WEIGHTS**



## Chad

**2004 - SAMPLE SIZES****TOTAL SAMPLE**

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Number of household members</b>						
All	5,672	6,304	5,296	5,823	5,653	28,747
Urban	70	154	277	817	4,576	5,895
Rural	5,601	6,149	5,020	5,005	1,077	22,852
Female	3,002	3,344	2,651	2,955	2,708	14,659
Male	2,670	2,960	2,645	2,868	2,945	14,088

**Part I: HNP STATUS**

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Mortality rates</b>						
All	2,143	2,757	2,354	2,615	2,096	11,965
Urban	24	59	115	341	1,641	2,180
Rural	2,119	2,698	2,239	2,273	455	9,785
Female	1,042	1,413	1,121	1,293	1,021	5,888
Male	1,102	1,345	1,233	1,322	1,076	6,077
<b>Prevalence of fever, diarrhea, acute respiratory infection</b>						
All	897	1,153	1,046	1,112	951	5,159
Urban	10	21	49	150	763	994
Rural	887	1,132	996	962	188	4,165
Female	443	617	487	559	464	2,570
Male	454	536	559	553	488	2,589
<b>Total fertility rate</b>						
All	1,216	1,310	1,100	1,246	1,213	6,085
Urban	16	39	59	176	999	1,289
Rural	1,200	1,271	1,041	1,070	214	4,796
<b>Age-specific fertility rate 15-19</b>						
All	279	257	228	288	309	1,360
Urban	3	12	18	40	262	335
Rural	276	245	210	248	47	1,026
<b>Children's nutritional status</b>						
All	803	1,061	947	993	830	4,635
Urban	10	18	40	136	678	882
Rural	793	1,043	907	857	152	3,753
Female	400	554	438	506	401	2,297
Male	404	508	510	487	429	2,337
<b>Children's anemia status</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
Female	na	na	na	na	na	na
Male	na	na	na	na	na	na

## Chad

**2004 - SAMPLE SIZES****Part I: HNP STATUS (Cont.)**

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Women's nutritional status</b>						
All	694	869	747	818	674	3,801
Urban	7	18	35	98	545	704
Rural	687	851	711	721	129	3,098
<b>Women's anemia status</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Girls' circumcision</b>						
All	726	725	547	628	654	3,281
Urban	11	23	37	107	547	725
Rural	715	702	511	521	107	2,556
<b>Women's circumcision</b>						
All	1,032	611	272	305	504	2,723
Urban	15	28	25	80	456	604
Rural	1,017	582	247	225	47	2,119
<b>Prevalence of genital discharge, ulcer, sore</b>						
Female	1,210	1,304	1,098	1,244	1,206	6,062
Urban Female	16	37	58	176	992	1,279
Rural Female	1,194	1,267	1,040	1,068	214	4,782
Male	302	364	355	368	495	1,885
Urban Male	4	6	14	45	433	502
Rural Male	298	358	341	323	62	1,382

## Chad

## 2004 - SAMPLE SIZES

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Immunization coverage</b>						
All	174	190	183	222	172	941
Urban	1	5	12	28	141	187
Rural	173	185	171	194	31	755
Female	96	100	94	112	90	492
Male	79	90	89	110	82	449
<b>Treatment of fever</b>						
All	238	447	343	419	324	1,772
Urban	2	9	23	53	263	350
Rural	236	438	320	366	61	1,422
Female	130	232	145	205	148	862
Male	108	215	198	214	176	910
<b>Treatment of acute respiratory infection</b>						
All	67	124	83	106	96	476
Urban	0	1	3	19	72	95
Rural	66	123	80	87	24	381
Female	35	69	43	69	50	265
Male	32	55	40	37	46	211
<b>Treatment of diarrhea</b>						
All	174	365	286	290	255	1,370
Urban	1	6	13	28	200	247
Rural	174	359	273	262	55	1,123
Female	85	199	130	148	109	671
Male	89	166	156	142	146	699
<b>Antenatal and delivery care</b>						
All	1,019	1,356	1,187	1,333	1,093	5,989
Urban	12	24	55	164	868	1,123
Rural	1,008	1,332	1,132	1,169	225	4,866
<b>Contraceptive prevalence</b>						
Female	900	1,026	905	985	847	4,663
Urban Female	8	20	36	121	671	857
Rural Female	891	1,005	869	864	176	3,806
Male	193	270	211	259	237	1,170
Urban Male	3	3	5	28	198	236
Rural Male	191	267	206	231	39	933
<b>Contraceptive source</b>						
Female	2	9	4	62	na	76
Urban Female	3	58	na	na	na	61
Rural Female	2	9	1	4	na	15
Male	na	na	na	na	na	na
Urban Male	na	na	na	na	na	na
Rural Male	na	na	na	na	na	na
<b>Treatment of genital discharge, ulcer, sore</b>						
Female	53	65	28	50	95	291
Urban Female	3	2	10	81	na	95
Rural Female	53	62	26	40	14	196
Male	8	3	13	18	19	62
Urban Male	0	2	19	na	na	21
Rural Male	8	3	13	16	na	41

## Chad

## 2004 - SAMPLE SIZES

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Sanitary disposal of stools</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Wash hands prior to preparing food</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Handwashing facilities in household?</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Bednet ownership</b>						
All	1,191	1,304	936	965	943	5,340
Urban	16	34	55	151	801	1,058
Rural	1,175	1,270	880	815	142	4,282
<b>Bednet use by children</b>						
All	1,019	1,356	1,187	1,333	1,093	5,989
Urban	12	24	55	164	868	1,123
Rural	1,008	1,332	1,132	1,169	225	4,866
<b>Bednet use by pregnant women</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Exclusive breastfeeding</b>						
All	71	117	85	98	73	444
Urban	1	2	4	12	56	74
Rural	70	115	81	87	17	370
Female	30	69	34	43	29	206
Male	41	47	51	55	44	238
<b>Timely complementary breastfeeding</b>						
All	44	90	69	93	73	368
Urban	1	1	3	14	65	83
Rural	43	89	66	79	8	285
Female	25	46	39	57	37	204
Male	19	44	30	36	36	165
<b>Bottle-feeding</b>						
All	160	289	226	257	217	1,148
Urban	1	5	8	39	177	230
Rural	159	284	218	218	40	919
Female	85	159	95	130	99	567
Male	75	129	131	127	119	581

## Chad

## 2004 - SAMPLE SIZES

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR (Cont.)

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Iodized salt in household</b>						
All	1,049	1,050	799	856	796	4,550
Urban	14	28	40	119	674	875
Rural	1,035	1,022	759	736	122	3,675
<b>Vitamin A supplementation</b>						
All	796	983	922	964	835	4,499
Urban	10	18	45	130	675	878
Rural	786	965	877	834	160	3,621
Female	392	515	442	491	411	2,250
Male	403	468	480	474	424	2,249
<b>Tobacco and alcohol use, casual sexual partners, condom use for casual sex</b>						
Female	na	na	na	na	na	na
Urban Female	na	na	na	na	na	na
Rural Female	na	na	na	na	na	na
Male	na	na	na	na	na	na
Urban Male	na	na	na	na	na	na
Rural Male	na	na	na	na	na	na
<b>Domestic violence</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na

## Chad

## 2004 - SAMPLE SIZES

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>School completion (Grade 5)</b>						
Female	1,280	1,388	1,140	1,281	1,258	6,348
Urban female	16	40	65	182	1,024	1,328
Rural female	1,264	1,348	1,075	1,099	234	5,020
Male	916	1,074	987	1,108	1,400	5,485
Urban male	10	21	54	160	1,205	1,450
Rural male	906	1,053	933	947	196	4,035
<b>School participation</b>						
Female	571	583	507	545	448	2,654
Urban female	5	14	25	82	348	474
Rural female	566	569	481	464	100	2,179
Male	548	648	486	564	481	2,727
Urban male	8	17	22	73	368	487
Rural male	541	631	464	491	113	2,240
<b>Mass media exposure</b>						
Female	1,216	1,310	1,100	1,246	1,213	6,085
Urban female	16	39	59	176	999	1,289
Rural female	1,200	1,271	1,041	1,070	214	4,796
Male	302	366	355	368	495	1,887
Urban male	4	6	14	46	433	503
Rural male	298	360	341	323	62	1,384
<b>Knowledge of HIV/AIDS prevention</b>						
Female	1,216	1,310	1,100	1,246	1,213	6,085
Urban female	16	39	59	176	999	1,289
Rural female	1,200	1,271	1,041	1,070	214	4,796
Male	302	366	355	368	495	1,887
Urban male	4	6	14	46	433	503
Rural male	298	360	341	323	62	1,384
<b>Household decisionmaking and justification of violence</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Orphanhood</b>						
All	2,876	3,317	2,847	3,096	2,689	14,825
Urban	35	75	137	426	2,113	2,786
Rural	2,841	3,242	2,710	2,671	576	12,039
Female	1,439	1,672	1,364	1,527	1,298	7,300
Male	1,437	1,642	1,483	1,569	1,390	7,523

## Chad

## 2004 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part I: HNP STATUS

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>A. Childhood illness and mortality</b>						
Infant mortality rate	9.65	10.22	15.93	14.07	7.91	6.66
Under-five mortality rate	10.71	14.82	19.83	17.77	10.57	9.08
Prevalence of fever	2.57	3.24	3.27	3.31	2.41	1.96
Prevalence of diarrhea	2.04	2.38	2.03	2.28	1.70	1.30
Prevalence of acute respiratory infection	1.24	1.83	2.00	1.58	1.60	1.00
<b>B. Fertility</b>						
Total fertility rate	0.26	0.27	0.28	0.28	0.19	0.15
Adolescent fertility rate	15.21	22.84	22.01	12.51	11.45	9.23
<b>C. Nutritional status</b>						
<i>Children:</i>						
Moderate stunting	1.52	1.60	1.65	1.70	1.40	0.76
Severe stunting	2.39	2.73	2.52	2.21	1.40	1.28
Moderate underweight	1.67	1.70	1.72	2.03	1.43	0.91
Severe underweight	2.30	1.90	2.47	2.15	1.00	1.23
Mild anemia	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na
<i>Women:</i>						
Malnutrition	3.19	2.08	2.34	2.49	1.39	1.45
Mild anemia	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na
<b>D. Female circumcision</b>						
<i>Prevalence of circumcision:</i>						
Girls	2.90	4.04	3.64	2.54	2.05	2.44
Women	3.65	7.02	5.40	5.09	3.68	4.40
<i>Prevalence of occlusion:</i>						
Girls	1.78	3.06	0.58	2.94	1.10	1.42
Women	0.41	0.91	1.51	1.29	1.00	0.58
<b>E. Sexually transmitted disease</b>						
<i>Prevalence of genital discharge:</i>						
Women	1.17	1.29	0.63	0.91	0.78	0.56
Men	1.13	0.71	0.97	0.76	0.52	0.41
<i>Prevalence of genital ulcer:</i>						
Women	0.35	0.35	0.27	0.22	0.32	0.16
Men	0.44	0.71	0.74	1.40	0.40	0.43

## Chad

## 2004 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>A. Childhood immunization</b>						
BCG coverage	4.92	5.38	6.09	6.13	4.57	3.55
Measles coverage	3.01	3.79	5.63	5.13	3.79	2.38
DPT coverage	2.24	3.35	3.94	4.40	3.90	2.38
Full basic coverage	0.86	2.17	3.28	3.72	3.06	1.68
No basic coverage	5.47	4.19	4.77	4.48	3.28	2.58
Hepatitis B coverage	na	na	na	na	na	na
Yellow fever coverage	na	na	na	na	na	na
<b>B. Treatment of childhood illnesses</b>						
<i>Treatment of fever:</i>						
Medical treatment of fever	2.62	4.06	3.58	3.08	3.05	2.01
Treatment in a public facility	0.91	1.19	1.87	2.13	3.15	1.40
Treatment in a private facility	1.31	0.56	1.01	1.21	0.97	0.42
<i>Treatment of acute respiratory infection (ARI):</i>						
Medical treatment of ARI	4.81	2.44	3.45	3.64	4.84	2.10
Treatment in a public facility	1.74	2.00	1.00	0.88	4.57	1.22
Treatment in a private facility	4.56	0.00	0.00	2.32	0.72	0.80
<i>Treatment of diarrhea:</i>						
Use of oral rehydration therapy	2.81	5.48	5.25	5.86	3.67	3.15
Medical treatment of diarrhea	0.85	2.27	3.23	3.77	3.23	1.66
Treatment in a public facility	0.85	1.22	3.03	2.00	2.88	1.40
Treatment in a private facility	0.00	0.46	0.00	1.07	0.82	0.31
<b>C. Antenatal and delivery care</b>						
<i>Antenatal care (ANC) visits:</i>						
To a medically-trained person	1.95	3.37	3.89	4.43	3.63	2.77
To a doctor	0.28	0.39	1.04	1.15	0.90	0.45
To a nurse or trained midwife	1.90	3.38	3.97	4.50	3.43	2.71
Multiple visits to a medically-trained person	1.19	2.97	3.15	3.31	3.37	2.21
<i>Antenatal care content:</i>						
Tetanus toxoid	2.21	3.79	4.61	4.76	3.47	2.77
Prophylactic antimalarial treatment	1.47	2.44	2.88	3.01	2.38	1.88
Iron supplementation	1.44	2.32	3.16	3.27	3.37	2.01
<i>Delivery attendance:</i>						
By a medically-trained person	0.53	1.82	1.80	2.64	3.19	1.84
By a doctor	0.14	0.19	0.17	0.38	0.45	0.14
By a nurse or trained midwife	0.48	1.78	1.79	2.64	3.04	1.80
In a public facility	0.29	1.23	1.36	2.26	2.99	1.44
In a private facility	0.15	0.15	0.10	0.40	0.42	0.13
At home	0.74	1.38	1.56	2.70	3.04	1.62
<b>D. Contraceptive services</b>						
<i>Contraceptive prevalence:</i>						
Women	0.00	0.12	0.39	0.17	1.18	0.29
Men	0.00	1.74	1.56	1.97	2.35	0.88
<i>Source of contraception - public sector:</i>						
Women	*	*	*	4.8	na	4.9
Men	na	na	na	na	na	na

## Chad

**2004 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION****Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE (Cont.)**

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>D. Contraceptive services (cont.)</b>						
<i>Source of contraception - private sector:</i>						
Women	*	*	*	5.31	na	5.22
Men	na	na	na	na	na	na
<b>E. Treatment of adult illnesses</b>						
<i>Treatment of genital discharge, ulcer, sore:</i>						
Women	6.61	8.02	13.06	11.03	4.47	5.18
Men	*	*	*	*	*	7.1
<i>Treatment of genital discharge, ulcer, sore in public medical facilities:</i>						
Women	6.61	8.02	13.06	11.03	4.47	5.18
Men	*	*	*	*	*	7.1
<i>Voluntary counseling and testing for HIV/AIDS:</i>						
Women	0.16	0.27	0.07	0.64	0.95	0.30
Men	0.56	0.55	0.72	0.58	1.79	0.66

## Chad

## 2004 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>A. Hygienic practices</b>						
<i>Disposal of children's stools:</i>						
Sanitary disposal	na	na	na	na	na	na
<i>Handwashing:</i>						
Wash hands prior to preparing food	na	na	na	na	na	na
Handwashing facilities in household	na	na	na	na	na	na
<b>B. Bednet ownership and use</b>						
<i>Bednet ownership:</i>						
Bednet ownership	3.86	5.30	4.96	5.71	2.10	3.42
Treated bednet ownership	na	na	na	na	na	na
<i>Bednet use:</i>						
By children	3.74	5.20	5.63	5.55	2.83	3.56
By pregnant women	na	na	na	na	na	na
<b>C. Breastfeeding</b>						
Exclusive breastfeeding	0.93	1.39	3.93	0.22	0.98	0.88
Timely complementary feeding	12.56	8.33	7.87	5.83	4.23	3.86
Bottle-feeding	0.39	1.34	0.69	0.34	1.75	0.60
<b>D. Micronutrient consumption</b>						
<i>Iodized salt:</i>						
Availability of iodized salt in household	6.61	3.15	2.66	2.09	2.47	3.19
<i>Vitamin A:</i>						
Children	3.56	3.14	3.59	3.10	3.04	1.98
Women	na	na	na	na	na	na
<b>E. Tobacco and alcohol use</b>						
<i>Tobacco:</i>						
Women	na	na	na	na	na	na
Men	na	na	na	na	na	na
<i>Alcohol:</i>						
Women	na	na	na	na	na	na
Men	na	na	na	na	na	na
<b>F. Sexual practices</b>						
<i>Non-regular sexual partnerships:</i>						
Women	0.00	0.25	0.34	0.76	0.36	0.27
Men	na	na	na	na	na	na
<i>Condom usage with non-regular partner:</i>						
Women	*	*	*	*	na	4.4
Men	na	na	na	na	na	na
<b>G. Domestic violence</b>						
Ever experienced violence	na	na	na	na	na	na
Experienced violence in past year	na	na	na	na	na	na

## Chad

## 2004 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>A. Education</b>						
<i>School completion:</i>						
Women	0.02	1.00	1.22	1.45	2.63	1.19
Men	0.69	3.24	3.63	3.70	2.78	2.47
<i>School participation:</i>						
Girls	1.81	4.01	3.65	4.43	2.96	2.31
Boys	3.26	3.73	4.26	4.01	3.29	2.67
<b>B. Exposure to mass media</b>						
<i>Newspaper readership:</i>						
Women	0.12	0.20	0.20	0.51	1.31	0.46
Men	0.00	1.69	2.15	2.94	2.74	1.50
<i>Radio listenership:</i>						
Women	0.75	1.74	1.52	2.34	2.44	1.75
Men	3.39	5.18	5.36	3.58	2.39	2.74
<i>Television viewership:</i>						
Women	0.23	0.42	0.57	0.42	2.13	0.69
Men	0.70	1.68	2.14	2.39	2.95	1.87
<b>C. Knowledge and attitudes about HIV/AIDS</b>						
<i>Knowledge about sexual transmission of HIV/AIDS:</i>						
Women	4.38	3.41	3.50	3.21	2.11	2.30
Men	4.66	3.59	6.08	6.14	2.58	2.57
<i>Knowledge about mother-to-child transmission of HIV/AIDS:</i>						
Women	2.88	3.94	3.92	3.47	3.16	3.05
Men	5.19	3.96	6.37	5.74	2.48	2.83
<i>Attitudes toward HIV/AIDS:</i>						
Women	2.89	2.46	2.28	2.37	1.46	1.32
Men	5.21	3.88	4.40	4.65	2.44	2.14
<b>D. Status of women</b>						
<i>Household decisionmaking:</i>						
Can seek own health care	na	na	na	na	na	na
Can seek children's health care	na	na	na	na	na	na
Can make daily household purchases	na	na	na	na	na	na
Can make large household purchases	na	na	na	na	na	na
Can make meal-related decisions	na	na	na	na	na	na
<i>Freedom of movement:</i>						
Can travel to visit family/relatives	na	na	na	na	na	na
<i>Other decisionmaking, attitudes:</i>						
Can decide how to spend own money	5.73	4.43	5.77	4.77	2.44	3.14
Can decide whether to have sex	2.62	1.38	1.44	1.59	1.72	0.92
Justifies domestic violence	na	na	na	na	na	na
<b>E. Orphanhood</b>						
Paternal orphan prevalence	1.00	0.74	0.78	0.61	0.70	0.39
Maternal orphan prevalence	0.32	0.46	0.59	0.50	0.50	0.23
Double orphan prevalence	0.10	0.20	0.25	0.17	0.32	0.11



## Chad

## 2004 - ASSET DISTRIBUTION AND WEIGHTS

(FACTOR SCORES)

Asset Variable	Unweighted		Wealth Quintiles						Factor Score
	Mean	Std. Deviation	Low	2nd	3rd	4th	High	Avg.	
			Percentage of Population						
Has radio	0.486	0.500	13.3%	18.2%	26.6%	62.2%	85.4%	41.0%	0.07702
Has television	0.080	0.271	0.0%	0.0%	0.0%	0.2%	19.2%	3.9%	0.09083
Has telephone	0.017	0.130	0.0%	0.0%	0.0%	0.0%	4.5%	0.9%	0.05819
Has refrigerator	0.029	0.168	0.0%	0.0%	0.0%	0.0%	6.9%	1.4%	0.07184
Has bicyclette	0.236	0.425	1.0%	9.4%	26.2%	48.5%	50.1%	26.8%	0.04602
Has mobylette/moto	0.097	0.296	0.0%	0.0%	0.5%	2.5%	27.6%	6.1%	0.07901
Has car/truck	0.039	0.194	0.0%	0.0%	0.0%	0.0%	13.0%	2.6%	0.07632
Has boat	0.007	0.080	0.0%	1.1%	0.3%	0.9%	1.1%	0.7%	0.00562
Has cart	0.051	0.219	6.5%	7.7%	9.7%	14.6%	9.6%	9.6%	-0.00382
Has camel/horse/donkey	0.331	0.471	83.3%	30.0%	37.9%	28.1%	10.8%	37.7%	-0.05912
Uses water from a private modern well for drinking	0.016	0.124	0.1%	0.1%	0.6%	1.6%	4.9%	1.5%	0.01337
Uses water from a public modern well for drinking	0.189	0.392	18.0%	25.1%	33.3%	30.7%	7.7%	22.9%	-0.02868
Uses water from a private traditional well for drinking	0.067	0.250	0.2%	8.4%	10.8%	14.4%	15.0%	9.8%	0.00122
Uses piped drinking water in residence	0.107	0.309	0.0%	0.0%	0.0%	0.2%	22.6%	4.5%	0.08846
Uses water from a public traditional well	0.232	0.422	25.8%	47.1%	35.4%	38.4%	9.9%	31.6%	-0.04042
Uses surface water for drinking	0.028	0.165	4.7%	3.6%	4.4%	1.4%	0.5%	2.9%	-0.01267
Uses water from a protected spring for drinking	0.008	0.087	0.3%	0.4%	0.4%	0.4%	1.5%	0.6%	0.00178
Uses water from an unprotected spring for drinking	0.072	0.258	30.1%	5.6%	2.5%	2.1%	0.3%	8.1%	-0.03278
Uses water from a surface source	0.053	0.225	18.0%	6.4%	5.4%	4.0%	0.1%	6.8%	-0.02400
Uses water from a vender: modern well	0.081	0.273	0.0%	0.0%	0.2%	0.5%	13.4%	2.8%	0.02918
Uses water from vendor: traditional well	0.005	0.071	0.0%	0.0%	0.1%	0.3%	0.4%	0.2%	0.00059
Uses water from vendor: other source	0.014	0.119	0.3%	0.3%	1.1%	0.2%	1.9%	0.7%	0.00575
Uses public tap water	0.117	0.322	2.3%	2.0%	3.6%	4.8%	20.8%	6.6%	0.01874
Uses other source of drinking water	0.011	0.106	0.2%	0.9%	2.3%	0.9%	0.9%	1.0%	0.00041
Uses own flush toilet	0.004	0.067	0.0%	0.0%	0.0%	0.0%	1.0%	0.2%	0.02912
Uses a shared flush toilet	0.024	0.154	0.0%	0.0%	0.5%	2.0%	5.6%	1.6%	0.01994
Uses an improved latrine	0.056	0.229	0.0%	0.0%	0.0%	0.1%	13.7%	2.8%	0.05991
Uses bush, field as latrine	0.559	0.497	100.0%	99.4%	92.4%	57.4%	7.8%	71.6%	-0.09932
Uses a pit latrine	0.356	0.479	0.0%	0.5%	7.1%	40.3%	71.8%	23.8%	0.06387
Has a cement floor (includes vinyl & other floor types)	0.087	0.282	0.0%	0.0%	0.0%	0.0%	23.6%	4.7%	0.09569
Has a dirt or sand floor	0.900	0.301	100.0%	100.0%	99.8%	98.8%	73.2%	94.4%	-0.09750
Has floor of ceramic tile (includes parquet floor)	0.004	0.065	0.0%	0.0%	0.0%	0.3%	2.0%	0.5%	0.01834
Has dung (primary), wood, palm, bamboo flooring	0.007	0.086	0.0%	0.0%	0.0%	0.7%	1.0%	0.3%	0.01169
Has walls made of natural materials	0.225	0.418	82.3%	17.4%	6.8%	4.2%	0.8%	22.2%	-0.06189
Has walls made of toles	0.006	0.079	0.0%	0.2%	0.3%	0.2%	1.4%	0.4%	0.00625
Has walls made of banco	0.666	0.472	17.7%	82.4%	92.6%	93.8%	68.9%	71.2%	-0.00576
Has wall is of semi-durable materials	0.062	0.242	0.0%	0.0%	0.2%	1.4%	18.8%	4.1%	0.06084
Has wall made of durable materials	0.040	0.195	0.0%	0.0%	0.0%	0.1%	9.9%	2.0%	0.06816
Has roof made of natural materials	0.538	0.499	100.0%	97.8%	71.0%	60.4%	7.6%	67.9%	-0.09444
Has roof made of banco	0.171	0.376	0.0%	2.2%	29.0%	34.2%	19.6%	16.6%	-0.00095
Has roof made of toles	0.285	0.452	0.0%	0.0%	0.0%	5.2%	71.6%	15.2%	0.10046
Has roof made of other materials	0.005	0.069	0.0%	0.0%	0.0%	0.0%	1.2%	0.2%	0.02995
Uses electric lighting	0.067	0.251	0.0%	0.0%	0.0%	0.0%	15.4%	3.1%	0.08899
Uses gas as lighting fuel	0.005	0.073	0.0%	0.3%	0.5%	0.3%	0.7%	0.4%	0.00677
Uses batteries for lighting fuel	0.107	0.309	18.3%	26.4%	10.3%	7.2%	1.0%	12.9%	-0.02907
Uses wood as lighting fuel	0.205	0.404	67.5%	34.7%	7.0%	2.2%	0.5%	22.7%	-0.05889
Uses kerosene as lighting fuel	0.608	0.488	13.2%	37.9%	81.4%	90.2%	82.1%	60.4%	0.02099
Uses other lighting fuel	0.005	0.069	0.8%	0.4%	0.2%	0.1%	0.1%	0.3%	-0.00345



## **PART V. SUPPORTING TABLES, 1996 / 97**

- A. SAMPLE SIZES**
- B. STANDARD ERRORS**
- C. ASSET DISTRIBUTION AND WEIGHTS**



## Chad

## 1996 / 97 - SAMPLE SIZES

## TOTAL SAMPLE

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Number of household members</b>						
All	5,871	9,139	6,925	7,242	7,297	36,473
Urban	138	254	338	1,785	5,959	8,474
Rural	5,732	8,885	6,587	5,457	1,338	27,999
Female	3,139	4,905	3,612	3,717	3,482	18,855
Male	2,729	4,230	3,306	3,523	3,809	17,597

## Part I: HNP STATUS

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Mortality rates</b>						
All	2,855	3,784	2,373	2,698	2,656	14,365
Urban	67	84	136	704	2,174	3,164
Rural	2,788	3,700	2,237	1,994	482	11,201
Female	1,478	1,862	1,162	1,358	1,322	7,182
Male	1,377	1,921	1,211	1,340	1,334	7,183
<b>Prevalence of fever, diarrhea, acute respiratory infection</b>						
All	1,291	1,654	1,043	1,223	1,235	6,445
Urban	28	39	56	293	989	1,405
Rural	1,263	1,615	987	930	245	5,040
Female	646	824	527	619	614	3,230
Male	644	830	516	604	620	3,214
<b>Total fertility rate</b>						
All	3,504	5,881	3,534	3,804	3,988	20,711
Urban	88	137	202	1,076	3,292	4,795
Rural	3,417	5,744	3,331	2,728	696	15,916
<b>Age-specific fertility rate 15-19</b>						
All	694	1,545	1,007	976	1,084	5,306
Urban	17	40	43	264	889	1,253
Rural	677	1,505	964	711	195	4,052
<b>Children's nutritional status</b>						
All	1,162	1,478	913	1,082	1,031	5,664
Urban	25	34	51	249	814	1,173
Rural	1,136	1,444	863	833	217	4,493
Female	571	726	455	554	516	2,822
Male	590	751	458	527	515	2,841
<b>Children's anemia status</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
Female	na	na	na	na	na	na
Male	na	na	na	na	na	na

## Chad

## 1996 / 97 - SAMPLE SIZES

## Part I: HNP STATUS (Cont.)

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Women's nutritional status</b>						
All	700	935	605	663	646	3,549
Urban	19	22	34	163	526	764
Rural	682	913	571	500	120	2,786
<b>Women's anemia status</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Girls' circumcision</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Women's circumcision</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Prevalence of genital discharge, ulcer, sore</b>						
Female	1,116	1,877	1,125	1,214	1,263	6,595
Urban Female	28	43	64	340	1,040	1,515
Rural Female	1,089	1,835	1,061	874	222	5,081
Male	233	478	347	326	512	1,896
Urban Male	4	10	18	95	450	577
Rural Male	229	468	329	230	62	1,318

## Chad

## 1996 / 97 - SAMPLE SIZES

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Immunization coverage</b>						
All	257	334	180	219	221	1,211
Urban	5	10	12	49	172	248
Rural	252	324	168	170	49	963
Female	150	154	96	109	113	622
Male	107	180	84	110	108	589
<b>Treatment of fever</b>						
All	380	531	321	431	406	2,069
Urban	10	11	21	85	331	458
Rural	371	520	300	346	75	1,612
Female	195	281	149	216	211	1,052
Male	185	250	172	216	194	1,017
<b>Treatment of acute respiratory infection</b>						
All	129	205	146	168	170	816
Urban	4	3	9	30	132	178
Rural	125	201	137	138	37	638
Female	63	99	75	84	83	404
Male	66	106	71	84	87	414
<b>Treatment of diarrhea</b>						
All	244	354	226	296	264	1,384
Urban	6	6	14	75	210	311
Rural	238	347	212	221	54	1,072
Female	117	154	130	143	127	671
Male	127	199	96	153	137	712
<b>Antenatal and delivery care</b>						
All	889	1,229	777	856	857	4,608
Urban	19	27	43	219	702	1,010
Rural	870	1,202	735	637	155	3,599
<b>Contraceptive prevalence</b>						
Female	1,017	1,639	1,030	1,080	1,066	5,832
Urban Female	23	29	52	266	868	1,238
Rural Female	994	1,610	979	813	198	4,594
Male	215	408	276	243	340	1,483
Urban Male	3	5	14	58	298	378
Rural Male	213	404	263	184	42	1,106
<b>Contraceptive source</b>						
Female	1	4	1	11	51	68
Urban Female	1	0	0	5	47	52
Rural Female	0	4	1	6	4	15
Male	na	na	na	na	na	na
Urban Male	na	na	na	na	na	na
Rural Male	na	na	na	na	na	na
<b>Treatment of genital discharge, ulcer, sore</b>						
Female	na	na	na	na	na	na
Urban Female	na	na	na	na	na	na
Rural Female	na	na	na	na	na	na
Male	na	na	na	na	na	na
Urban Male	na	na	na	na	na	na
Rural Male	na	na	na	na	na	na

## Chad

## 1996 / 97 - SAMPLE SIZES

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Sanitary disposal of stools</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Wash hands prior to preparing food</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Handwashing facilities in household?</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Bednet ownership</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Bednet use by children</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Bednet use by pregnant women</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na
<b>Exclusive breastfeeding</b>						
All	93	139	84	98	104	518
Urban	3	2	6	26	81	118
Rural	90	137	79	72	23	401
Female	44	70	43	36	44	237
Male	49	68	41	62	59	279
<b>Timely complementary breastfeeding</b>						
All	110	104	102	96	94	506
Urban	2	5	4	25	76	112
Rural	108	99	98	71	18	394
Female	68	51	55	46	49	269
Male	42	53	47	50	45	237
<b>Bottle-feeding</b>						
All	287	361	265	294	300	1,507
Urban	7	7	13	74	240	341
Rural	280	354	252	221	61	1,168
Female	149	185	133	134	148	749
Male	138	177	132	160	152	759

## Chad

## 1996 / 97 - SAMPLE SIZES

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR (Cont.)

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>Iodized salt in household</b>						
All	901	1,532	1,353	1,154	1,154	6,094
Urban	19	38	65	302	969	1,393
Rural	882	1,494	1,288	852	185	4,701
<b>Vitamin A supplementation</b>						
All	1,142	1,443	913	1,057	1,071	5,626
Urban	23	36	49	254	856	1,218
Rural	1,120	1,406	864	803	216	4,409
Female	578	721	454	533	543	2,829
Male	564	722	459	524	529	2,798
<b>Tobacco and alcohol use, casual sexual partners, condom use for casual sex</b>						
Female	1,252	2,134	1,274	1,364	1,430	7,454
Urban Female	31	52	72	382	1,182	1,719
Rural Female	1,222	2,081	1,202	981	248	5,734
Male	275	580	446	421	598	2,320
Urban Male	6	16	28	120	529	699
Rural Male	270	564	417	301	69	1,621
<b>Domestic violence</b>						
All	na	na	na	na	na	na
Urban	na	na	na	na	na	na
Rural	na	na	na	na	na	na

## Chad

## 1996 / 97 - SAMPLE SIZES

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles					Pop. Total
	Low	2nd	3rd	4th	High	
<b>School completion (Grade 5)</b>						
Female	1,272	2,215	1,376	1,462	1,502	7,827
Urban female	31	55	74	390	1,229	1,778
Rural female	1,242	2,160	1,302	1,072	273	6,048
Male	856	1,467	1,252	1,336	1,810	6,721
Urban male	18	37	65	351	1,552	2,023
Rural male	839	1,430	1,186	985	258	4,699
<b>School participation</b>						
Female	654	835	589	664	637	3,380
Urban female	14	27	28	154	492	716
Rural female	640	809	561	510	145	2,664
Male	598	805	572	663	605	3,243
Urban male	15	23	25	156	489	708
Rural male	583	782	546	507	116	2,535
<b>Mass media exposure</b>						
Female	1,252	2,134	1,274	1,364	1,430	7,454
Urban female	31	52	72	382	1,182	1,720
Rural female	1,222	2,081	1,202	981	248	5,734
Male	275	580	446	421	598	2,320
Urban male	6	16	28	120	529	699
Rural male	270	564	417	301	69	1,621
<b>Knowledge of HIV/AIDS prevention</b>						
Female	3,408	2,134	1,274	1,364	1,430	9,610
Urban female	31	52	72	382	1,182	1,719
Rural female	1,222	2,081	1,202	981	248	5,734
Male	275	580	446	421	598	2,320
Urban male	6	16	28	120	529	699
Rural male	270	564	417	301	69	1,621
<b>Household decisionmaking and justification of violence</b>						
All	1,252	2,134	1,274	1,364	1,430	7,454
Urban	31	52	72	382	1,182	1,720
Rural	1,222	2,081	1,202	981	248	5,734
<b>Orphanhood</b>						
All	3,361	4,562	3,139	3,578	3,438	18,078
Urban	78	124	158	842	2,734	3,937
Rural	3,283	4,438	2,981	2,735	705	14,142
Female	1,714	2,254	1,529	1,782	1,714	8,994
Male	1,646	2,302	1,605	1,793	1,723	9,068

## Chad

## 1996 / 97 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part I: HNP STATUS

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>A. Childhood illness and mortality</b>						
Infant mortality rate	6.45	8.35	7.87	8.49	5.78	3.87
Under-five mortality rate	10.77	11.16	12.76	11.01	9.10	5.90
Prevalence of fever	1.87	1.64	1.82	2.22	1.23	0.99
Prevalence of diarrhea	1.30	1.50	1.35	1.64	1.08	0.75
Prevalence of acute respiratory infection	1.31	1.24	1.48	1.34	1.05	0.66
<b>B. Fertility</b>						
Total fertility rate	0.25	0.21	0.22	0.21	0.19	0.12
Adolescent fertility rate	15.00	13.00	14.00	14.00	11.00	7.00
<b>C. Nutritional status</b>						
<i>Children:</i>						
Moderate stunting	1.35	1.10	1.44	1.07	1.05	0.50
Severe stunting	1.67	1.30	1.89	1.47	0.93	0.74
Moderate underweight	1.62	1.45	1.85	1.38	1.27	0.70
Severe underweight	1.35	1.07	1.42	1.15	0.79	0.61
Mild anemia	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na
<i>Women:</i>						
Malnutrition	2.10	1.63	2.20	1.63	1.70	0.96
Mild anemia	na	na	na	na	na	na
Moderate anemia	na	na	na	na	na	na
Severe anemia	na	na	na	na	na	na
<b>D. Female circumcision</b>						
<i>Prevalence of circumcision:</i>						
Girls	na	na	na	na	na	na
Women	na	na	na	na	na	na
<i>Prevalence of occlusion:</i>						
Girls	na	na	na	na	na	na
Women	na	na	na	na	na	na
<b>E. Sexually transmitted disease</b>						
<i>Prevalence of genital discharge:</i>						
Women	0.13	0.08	0.18	0.23	0.20	0.07
Men	1.37	0.68	0.69	0.72	0.68	0.37
<i>Prevalence of genital ulcer:</i>						
Women	0.11	0.00	0.00	0.00	0.12	0.03
Men	0.58	0.50	0.57	0.32	0.40	0.23

## Chad

## 1996 / 97 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>A. Childhood immunization</b>						
BCG coverage	3.38	4.92	4.51	4.70	3.87	2.70
Measles coverage	2.29	3.47	3.09	4.24	3.40	1.85
DPT coverage	2.33	4.07	2.37	4.18	3.48	2.11
Full basic coverage	1.36	2.99	1.91	3.30	2.57	1.50
No basic coverage	4.27	4.32	4.99	3.68	2.88	2.60
Hepatitis B coverage	na	na	na	na	na	na
Yellow fever coverage	2.51	2.97	3.34	4.16	2.81	1.70
<b>B. Treatment of childhood illnesses</b>						
<i>Treatment of fever:</i>						
Medical treatment of fever	0.69	1.25	2.17	1.74	1.87	0.81
Treatment in a public facility	0.16	0.93	0.57	1.25	1.31	0.46
Treatment in a private facility	0.69	0.86	2.16	1.42	1.12	0.64
<i>Treatment of acute respiratory infection (ARI):</i>						
Medical treatment of ARI	2.42	2.78	4.93	2.97	4.27	1.76
Treatment in a public facility	0.48	2.06	2.69	2.59	3.71	1.19
Treatment in a private facility	2.38	2.33	4.79	1.87	1.80	1.52
<i>Treatment of diarrhea:</i>						
Use of oral rehydration therapy	3.82	2.82	4.29	2.49	2.92	1.66
Medical treatment of diarrhea	1.87	2.74	2.97	2.78	3.24	1.49
Treatment in a public facility	1.11	1.43	1.99	2.05	2.94	1.03
Treatment in a private facility	1.64	2.42	2.36	2.30	2.15	1.13
<b>C. Antenatal and delivery care</b>						
<i>Antenatal care (ANC) visits:</i>						
To a medically trained person	1.63	1.81	2.31	2.49	2.18	1.47
To a doctor	0.29	0.11	0.56	0.67	0.99	0.31
To a nurse or trained midwife	1.61	1.78	2.17	2.69	1.97	1.50
Multiple visits to a medically trained person	1.26	1.56	1.97	2.31	2.33	1.37
<i>Antenatal care content:</i>						
Tetanus toxoid	1.58	1.95	2.04	2.52	2.30	1.60
Prophylactic antimalarial treatment	na	na	na	na	na	na
Iron supplementation	na	na	na	na	na	na
<i>Delivery attendance:</i>						
By a medically trained person	0.69	0.91	1.17	1.67	1.99	0.94
By a doctor	0.37	0.09	0.28	0.32	0.47	0.16
By a nurse or trained midwife	0.57	0.89	1.09	1.59	1.94	0.87
In a public facility	0.51	0.81	0.77	1.05	1.70	0.65
In a private facility	0.38	0.54	0.26	0.67	0.58	0.43
At home	0.67	1.07	1.00	1.41	1.88	0.84
<b>D. Contraceptive services</b>						
<i>Contraceptive prevalence:</i>						
Women	0.07	0.17	0.16	0.46	0.76	0.16
Men	0.63	0.47	0.00	0.75	1.58	0.44
<i>Source of contraception - public sector:</i>						
Women	*	*	*	*	5.32	5.85
Men	na	na	na	na	na	na

## Chad

## 1996 / 97 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part II: Intermediate Determinants of HNP Status - HNP SERVICE USE (Cont.)

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>D. Contraceptive services (cont.)</b>						
<i>Source of contraception - private sector:</i>						
Women	*	*	*	*	5.39	5.79
Men	na	na	na	na	na	na
<b>E. Treatment of adult illnesses</b>						
<i>Treatment of genital discharge, ulcer, sore:</i>						
Women	*	*	*	*	*	7.47
Men	*	*	*	*	9.98	7.33
<i>Treatment of genital discharge, ulcer, sore in public medical facilities:</i>						
Women	0.13	0.08	0.18	0.23	0.20	0.07
Men	1.37	0.73	0.69	0.72	0.70	0.38
<i>Voluntary counseling and testing for HIV/AIDS:</i>						
Women	na	na	na	na	na	na
Men	na	na	na	na	na	na

## Chad

## 1996 / 97 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part III: Intermediate Determinants of HNP Status - INDIVIDUAL AND HOUSEHOLD BEHAVIOR

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>A. Hygienic practices</b>						
<i>Disposal of children's stools:</i>						
Sanitary disposal	na	na	na	na	na	na
<i>Handwashing:</i>						
Wash hands prior to preparing food	na	na	na	na	na	na
Handwashing facilities in household	na	na	na	na	na	na
<b>B. Bednet ownership and use</b>						
<i>Bednet ownership:</i>						
Bednet ownership	na	na	na	na	na	na
Treated bednet ownership	na	na	na	na	na	na
<i>Bednet use:</i>						
By children	na	na	na	na	na	na
By pregnant women	na	na	na	na	na	na
<b>C. Breastfeeding</b>						
Exclusive breastfeeding	0.00	0.00	1.50	1.23	2.14	0.55
Timely complementary feeding	5.87	5.51	4.42	5.39	4.05	2.52
Bottle-feeding	0.45	0.00	0.84	0.63	1.57	0.41
<b>D. Micronutrient consumption</b>						
<i>Iodized salt:</i>						
Availability of iodized salt in household	3.80	2.61	2.78	2.59	1.83	1.74
<i>Vitamin A:</i>						
Children	0.27	0.15	0.48	0.92	0.24	0.27
Women	na	na	na	na	na	na
<b>E. Tobacco and alcohol use</b>						
<i>Tobacco:</i>						
Women	na	na	na	na	na	na
Men	na	na	na	na	na	na
<i>Alcohol:</i>						
Women	na	na	na	na	na	na
Men	na	na	na	na	na	na
<b>F. Sexual practices</b>						
<i>Non-regular sexual partnerships:</i>						
Women	0.18	0.10	0.23	0.24	0.19	0.09
Men	1.61	1.79	2.21	2.14	2.11	1.01
<i>Condom usage with non-regular partner:</i>						
Women	*	*	*	*	*	3.85
Men	0.00	3.42	4.36	3.30	3.07	2.12
<b>G. Domestic violence</b>						
Ever experienced violence	na	na	na	na	na	na
Experienced violence in past year	na	na	na	na	na	na

## Chad

## 1996 / 97 - STANDARD ERRORS OF QUINTILE ESTIMATES FOR TOTAL POPULATION

## Part IV: UNDERLYING DETERMINANTS OF HNP STATUS

Indicator	Wealth Quintiles					Pop. Avg.
	Low	2nd	3rd	4th	High	
<b>A. Education</b>						
<i>School completion:</i>						
Women	0.25	0.25	0.40	0.67	1.94	0.56
Men	1.18	1.22	1.78	2.14	2.54	1.37
<i>School participation:</i>						
Girls	1.61	2.48	2.29	2.33	3.29	1.27
Boys	2.87	2.51	2.86	2.81	2.46	1.54
<b>B. Exposure to mass media</b>						
<i>Newspaper readership:</i>						
Women	0.19	0.29	0.42	0.55	1.41	0.41
Men	0.96	1.53	1.79	2.58	2.44	1.28
<i>Radio listenership:</i>						
Women	0.88	0.84	1.74	1.69	1.45	1.03
Men	2.16	1.60	3.19	2.98	1.82	1.62
<i>Television viewership:</i>						
Women	0.15	0.10	0.10	0.60	1.52	0.39
Men	0.00	0.39	0.30	1.09	2.79	1.05
<b>C. Knowledge and attitudes about HIV/AIDS</b>						
<i>Knowledge about sexual transmission of HIV/AIDS:</i>						
Women	3.13	3.33	3.35	2.24	1.15	2.47
Men	4.76	2.72	2.39	1.94	0.90	1.60
<i>Knowledge about mother-to-child transmission of HIV/AIDS:</i>						
Women	1.70	1.71	2.18	1.98	2.04	1.15
Men	4.43	3.18	3.66	3.40	3.12	2.07
<i>Attitudes toward HIV/AIDS:</i>						
Women	na	na	na	na	na	na
Men	na	na	na	na	na	na
<b>D. Status of women</b>						
<i>Household decisionmaking:</i>						
Can seek own health care	na	na	na	na	na	na
Can seek children's health care	na	na	na	na	na	na
Can make daily household purchases	na	na	na	na	na	na
Can make large household purchases	na	na	na	na	na	na
Can make meal-related decisions	na	na	na	na	na	na
<i>Freedom of movement:</i>						
Can travel to visit family/relatives	na	na	na	na	na	na
<i>Other decisionmaking, attitudes:</i>						
Can decide how to spend own money	2.84	2.83	2.79	2.70	1.48	1.77
Can decide whether to have sex	na	na	na	na	na	na
Justifies domestic violence	na	na	na	na	na	na
<b>E. Orphanhood</b>						
Paternal orphan prevalence	0.90	0.71	0.59	0.77	0.47	0.33
Maternal orphan prevalence	0.38	0.30	0.47	0.42	0.42	0.17
Double orphan prevalence	0.10	0.11	0.19	0.20	0.18	0.07



## Chad

## 1996 / 97 - ASSET DISTRIBUTION AND WEIGHTS

(FACTOR SCORES)

Asset Variable	Unweighted		Wealth Quintiles						Factor Score
	Mean	Std. Deviation	Low	2nd	3rd	4th	High	Avg.	
			Percentage of Population						
Has electricity	0.043	0.203	0.0%	0.0%	0.0%	0.5%	13.3%	2.8%	0.10008
Has radio	0.374	0.484	0.0%	4.2%	38.4%	47.5%	81.0%	34.0%	0.07271
Has television	0.032	0.176	0.0%	0.0%	0.0%	0.0%	11.4%	2.3%	0.09607
Has refrigerator	0.016	0.124	0.0%	0.0%	0.0%	0.0%	6.0%	1.2%	0.08945
Has bicycle	0.133	0.340	0.0%	9.7%	7.8%	30.1%	33.9%	16.7%	0.02946
Has motorcycle	0.056	0.230	0.0%	0.0%	0.0%	1.3%	22.5%	4.8%	0.06928
Has car	0.020	0.142	0.0%	0.0%	0.0%	0.0%	8.1%	1.6%	0.07941
Has telephone	0.006	0.079	0.0%	0.0%	0.0%	0.0%	2.2%	0.4%	0.06785
Works on own or family's agricultural land	0.445	0.497	100.0%	84.8%	65.4%	56.0%	13.8%	63.6%	-0.06400
Uses piped drinking water in residence	0.054	0.225	0.0%	0.0%	0.0%	0.5%	16.3%	3.4%	0.09364
Uses a traditional well in residence	0.145	0.353	0.0%	1.0%	13.9%	25.1%	26.4%	13.1%	0.01688
Uses a modern well in residence	0.009	0.096	0.0%	0.0%	0.7%	2.0%	2.1%	0.9%	0.00651
Uses river, canal or surface water for drinking	0.093	0.290	9.8%	20.0%	14.4%	11.2%	2.1%	12.0%	-0.02252
Uses rain for drinking water	0.004	0.063	0.2%	0.8%	0.8%	0.5%	0.0%	0.5%	-0.00455
Uses a public fountain	0.072	0.258	0.0%	1.7%	3.7%	10.8%	12.1%	5.7%	0.00565
Uses water from a tanker truck	0.000	0.021	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.00096
Uses water from a vendor	0.138	0.345	0.0%	0.0%	0.6%	7.4%	25.0%	6.6%	0.03051
Uses a traditional public well	0.340	0.474	83.8%	49.7%	40.3%	23.2%	8.1%	39.8%	-0.05184
Uses a modern public well	0.142	0.349	6.3%	26.7%	25.5%	18.1%	7.8%	17.7%	-0.02361
Uses other source of drinking water	0.002	0.044	0.0%	0.0%	0.0%	0.8%	0.2%	0.2%	0.00067
Uses own flush toilet	0.002	0.045	0.0%	0.0%	0.0%	0.0%	0.5%	0.1%	0.03737
Uses a shared flush toilet	0.003	0.051	0.0%	0.0%	0.0%	0.0%	0.7%	0.1%	0.03412
Uses bush,field as latrine	0.596	0.491	100.0%	99.7%	94.1%	52.7%	10.4%	71.5%	-0.08743
Uses an improved pit latrine	0.124	0.330	0.0%	0.0%	0.0%	1.2%	36.4%	7.5%	0.08360
Uses a septic pit latrine	0.274	0.446	0.0%	0.0%	5.4%	45.8%	52.0%	20.5%	0.02691
Uses other type of latrine	0.001	0.032	0.0%	0.3%	0.3%	0.2%	0.0%	0.2%	-0.00223
Has dirt, sand, dung as principal floor in dwelling	0.935	0.247	100.0%	100.0%	100.0%	100.0%	77.3%	95.5%	-0.11275
Has tile principal floor in dwelling	0.003	0.051	0.0%	0.0%	0.0%	0.0%	0.9%	0.2%	0.03593
Has cement principal floor	0.063	0.243	0.0%	0.0%	0.0%	0.0%	21.8%	4.4%	0.10734
Has cane, palm, trunks for walls	0.971	0.167	100.0%	100.0%	100.0%	97.9%	91.0%	97.8%	-0.08092
Has walls made of cement	0.022	0.147	0.0%	0.0%	0.0%	0.0%	7.6%	1.5%	0.09099
Has other material for walls	0.006	0.076	0.0%	0.0%	0.0%	2.0%	1.3%	0.6%	0.00021
Has natural material roofing	0.765	0.424	100.0%	100.0%	100.0%	98.4%	26.8%	85.0%	-0.10474
Has roof is made of sheet metal	0.233	0.423	0.0%	0.0%	0.0%	1.6%	72.7%	14.9%	0.10341
Has roof is made of cement	0.001	0.036	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.01727
Number of members per sleeping room	2.823	1.728	4.7	3.0	2.7	2.9	2.9	3.2	-0.01885



## **PART VI. ANNEXES**

- A. SOURCES OF ADDITIONAL INFORMATION**
- B. USE OF INFORMATION FROM THIS REPORT TO MONITOR THE ECONOMIC STATUS OF PEOPLE SERVED BY HNP PROGRAMS**
- C. COUNTRIES COVERED BY THE HNP-POVERTY REPORT PROJECT**



## **ANNEX A. SOURCES OF ADDITIONAL INFORMATION**

### **ADDITIONAL INEQUALITY DATA**

World Bank HNP/Poverty Country Report Website:  
<http://www.worldbank.org/hnp/povertyandhealth/countrydata>.

This World Bank website provides the full texts and tables for all fifty-six countries covered by the HNP/Poverty Country Report Project. (A list of the countries covered appears in annex C, at the end of this report.) Also available at the site are summary tables, organized by indicator, designed to facilitate cross-country comparisons in inequality with respect to particular indicators.

DHS Country Reports: <http://www.measuredhs.com/countries>.

All DHS final country reports produced since 2003 include quintile-specific tabulations in approximately 50-100 of the reports' HNP indicator tables. The tables deal with some of the indicators covered in this volume, and with many that are not.

UNICEF Multi-Indicator Cluster Survey Website:  
<http://www.childinfo.org/MICS2/natlMICSrepz/MICSnatrep.htm>.

The UNICEF Multi-Indicator Cluster Survey (MICS) project is generally similar to the DHS program, but covers a somewhat different set of countries and indicators. The "standard tables" section for each country listed at the MICS website provides wealth-based, quintile-specific information in around 40-45 of the tables related to hnp, education, and child labor. In deriving these quintile-specific estimates, the MICS investigators have employed a wealth index similar to the one used here.

World Health Organization World Health Survey Website:  
<http://www.who.int/healthinfo/survey/en/index.html>.

The World Health Organization's World Health Survey (WHS) includes such issues as self-assessed adult health status; coverage of interventions against adult chronic diseases and against maternal and child health problems; household health expenditures; insurance coverage; and health system responsiveness. Approximately seventy countries – developed as well as developing – have been covered thus far. Household wealth information has been collected and used to prepare quintile-specific estimates for many of the indicators appearing in the reports on these countries.

## METHODS AND RESOURCES FOR FURTHER INEQUALITY ANALYSIS

Shea Oscar Rutstein and Kiersten Johnson, *The DHS Wealth Index*, DHS Comparative Reports No. 6 (Calverton, Maryland, USA: ORC Macro, August 2004) (Available at: [http://www.measuredhs.com/pubs/pub\\_details.cfm?ID=470&srchTp=type](http://www.measuredhs.com/pubs/pub_details.cfm?ID=470&srchTp=type)).

This DHS publication, by two of the co-authors of the current report, describes in detail the construction of the wealth index that underlies the data presented in the basic tables.

Deon Filmer and Lant H. Pritchett, "Estimating Wealth Effects without Expenditure Data – or Tears: An Application to Education Enrollments in States in India," *Demography* 38, no.1 (February 2001): 115-132.

This seminal piece gave birth to the wealth index procedure used in the current volume. It also includes three of the previously-cited country case studies demonstrating the close relationship between results produced using wealth and those based on consumption as an indicator of household economic status.

Owen O'Donnell, Eddy van Doorslaer, Adam Wagstaff, and Magnus Lindelow. *Quantitative Techniques for Health Equity Analysis*. Washington D.C.: The World Bank, forthcoming.

Among the topics covered in this comprehensive overview of available quantitative techniques are the measurement of living standards using a wealth index and other approaches (chapter 6) and the concentration index as a measure of inequality (chapter 8).

DHS Country Data Sets: <http://www.measuredhs.com/accesssurveys/search>.

The data sets for all DHS surveys undertaken since 2003 include two pieces of information for each household that are designed to help investigators prepare quintile-specific tabulations for any indicator. These are: 1) the household wealth score; and 2) the economic quintile to which individuals in the household belong. Any tabulation using these pieces of information will be comparable to the figures appearing here.

## **ANNEX B. USE OF INFORMATION FROM THIS REPORT TO MONITOR THE ECONOMIC STATUS OF PEOPLE SERVED BY HNP PROGRAMS**

The wealth or asset approach employed in this report can be used to monitor the economic status of people served by health, nutrition, and population (hnp) programs in two ways. The first, simpler way is suitable for monitoring nationwide, facility-based programs. A second, fuller version can also be employed for other types of programs, such as initiatives undertaken only in some parts of a country, or activities like mass education or outreach programs that do not operate through facilities.

### **BASIC MONITORING OF NATIONWIDE FACILITY-BASED PROGRAMS**

The economic distribution of patients in a nationwide, facility-based program (say, a network of rural health posts, antenatal care clinics, emergency obstetrical facilities, or hospitals) can be determined through an exit survey of facility patients, using the wealth questionnaire and the set of quintile cut-off points that immediately follow this text, and which have been created using the information presented in part III.C. The questionnaire can be employed to measure the economic status of any individual responding to the questions on it. The set of cut-off points can serve to compare the distribution of the respondents' economic status with that of the nationally-representative sample of people interviewed by the DHS survey on which the present report is based.

The first step is to use the questionnaire in interviewing an adequately-large sample of patients attending the facility-based services of interest. The wealth score for each patient can then be calculated by multiplying the response to each question by the item scores also provided on the questionnaire, and summing the results. After this has been done, the quintile cut-off points can be used to place each individual in the economic quintile to which (s)he belongs. The number of patients and percentage of total patients in each quintile can then be calculated.

Since each quintile defined by the cut-off points contains 20 percent of the individuals in the nationally-representative DHS sample, the patients belonging to any such quintile containing significantly more (or less) than 20 percent of the total are over- (under-) represented relative to the national population. When the percentage of patients in each of the five quintiles is viewed as a whole, the result is a frequency distribution that indicates the spread of service beneficiaries across economic classes of individuals.<sup>21</sup> For example:

- A service that favors the poorest people would have substantially more than 20 percent of its patients in each of the lowest one or two economic quintiles; considerably less than 20 percent of its patients in each of the highest quintiles.

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<sup>21</sup> That is, across economic classes of all individuals in the sample population. Estimates pertaining to quintiles of only those individuals needing services require adjusting the results of the procedure described here through application of the relevant quintile-specific, sample-size figures presented in part III.A.

- A service that reaches all economic classes equally would draw roughly the same proportion of total patients from the lower and upper quintiles.
- A service that favors the least poor population groups would have well over 20 percent of its patients in each of the highest one or two quintiles, considerably less than 20 percent of its patients in each of the lowest quintiles.

## **FULLER MONITORING OF FACILITY-BASED AND OF OTHER PROGRAMS**

While capable of providing far more information than currently exists about the distribution of a program's beneficiaries, the approach just described has important limitations. For example, it cannot deal with the many important types of health programs that do not deliver services primarily through facilities – mass media health education, household visits by health workers, and many social marketing initiatives, for example. It is also limited in its ability to assess programs working only with certain areas within a country: it can compare the economic status of the programs' beneficiaries with that of the national population, but not with that of the specific sub-national areas where the programs are active. Further, it focuses primarily on only one of the two important dimensions of monitoring the distribution of program beneficiaries: that is, incidence or focus – the percentage of program benefits that flow to the poor. It cannot deal nearly so well with the second dimension, which concerns coverage, or the percentage of the poor that the program reaches.

These limitations can be overcome by a modified version of the approach described above that relies on a household- rather than facility-based survey. A household survey can generate a set of data containing the full range of information needed to produce an equity assessment by collecting two types of information: first, about the household's wealth or assets, using the questions in the left-hand column of the attached questionnaire;<sup>22</sup> and second, about the household members' use of or exposure to the services provided by the program(s) of interest. The collected data can be analyzed in either (or both) of two ways, depending on the type of information desired:

- One way would be to use only data from the household survey. The procedure would be analogous to that for a DHS survey employed in this report:
  - Asset information from the survey-generated data set would be used as the basis for the construction of a wealth index, weighting the individual items using some method like principal components analysis.
  - The individuals in the sample would be ranked in order of the index values for their households, then divided into groups like quintiles.
  - The coverage rates in each quintile for the service of interest would be calculated.
- A second approach would be to use the weights for each item appearing on the attached questionnaire in determining the wealth of each individual, instead of calculating the weights from the new household data set. Once the individuals' wealth is determined, the individuals would be ranked, divided into quintiles, and the coverage rate in each quintile would be calculated. In the case of programs undertaken in only one region of the country, it would

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<sup>22</sup> Or, if one is willing to forego the benefits of the second analytical approach described below, using any of several other asset questionnaires that exist. Examples include the INDEPTH health equity survey tool (available at: [www.indepth-network.org/core\\_documents/indepthtools.htm](http://www.indepth-network.org/core_documents/indepthtools.htm)) or the model questionnaire developed by M. Mahood Khan and David Hotchkiss of the PHR Plus project (which can be found at: [www.phrplus.org](http://www.phrplus.org)).

provide a comparison of the economic status of the people served with that of the entire country rather than of only the region where the programs are active;<sup>23</sup> in the case of nationwide as well as regional programs, it would permit a comparison with the other service programs covered in this report.

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<sup>23</sup> This additional perspective could be particularly helpful in an assessment of a program seeking to reach the poor by focusing on especially backward districts. A report presenting only a finding that the program was reaching the better-off people in those districts could produce an impression that it had failed to reach its intended beneficiaries. But a comparison between the economic status of the program's beneficiaries with that of the national population might well reveal that most of the beneficiaries were poor by national standards and that the program was thus considerably more successful than otherwise thought.



## Chad

## 2004 - ASSET QUESTIONNAIRE

Question	Score if "Yes"	Score if "No"	Item Score
<i>1. In your household, is/are there?</i>			
One or more radios	0.07927	-0.07482	_____
One or more televisions	0.30780	-0.02680	_____
One or more telephones	0.43828	-0.00773	_____
One or more refrigerators	0.41523	-0.01243	_____
One or more bicycles	0.08275	-0.02559	_____
One or more motorcycles	0.24125	-0.02587	_____
One or more cars, trucks	0.37731	-0.01543	_____
One or more boats	0.06940	-0.00046	_____
One or more carts	-0.01652	0.00088	_____
One or more camels, horses, donkeys	-0.08404	0.04158	_____
<i>2. What is the principal source of drinking water for your household?</i>			
Piped water in residence	0.25564	-0.03060	_____
Piped water in public tap	0.05143	-0.00682	_____
Private modern well	0.10604	-0.00169	_____
Public modern well	-0.05937	0.01386	_____
Private traditional well	0.00455	-0.00033	_____
Public traditional well	-0.07360	0.02220	_____
Surface water	-0.07471	0.00215	_____
Protected spring	0.02034	-0.00016	_____
Unprotected spring	-0.11810	0.00910	_____
Vendor: modern well	0.09828	-0.00866	_____
Vendor: traditional well	0.00835	-0.00004	_____
Vendor: other source	0.04763	-0.00069	_____
Other	0.00381	-0.00004	_____
<i>3. What is the principal type of toilet facility used by your household?</i>			
Private flush toilet	0.43451	-0.00195	_____
Shared flush toilet	0.12660	-0.00314	_____
Improved latrine	0.24713	-0.01452	_____
Pit latrine	0.08591	-0.04748	_____
Bush, field as latrine	-0.08821	0.11179	_____
<i>4. What is the principal material used for the floors in your household?</i>			
Dirt, sand	-0.03257	0.29183	_____
Cement (includes vinyl & other)	0.30926	-0.02960	_____
Ceramic tile (includes parquet floor)	0.27958	-0.00120	_____
Dung (primary), wood, palm, bamboo	0.13488	-0.00101	_____

Chad

**2004 - ASSET QUESTIONNAIRE**

Question	Score if "Yes"	Score if "No"	Item Score
<i>5. What is the principal material used for the walls of your household?</i>			
Natural materials	-0.11485	0.03334	_____
Toles	0.07825	-0.00050	_____
Banco	-0.00407	0.00813	_____
Semi-durable materials	0.23622	-0.01567	_____
Durable materials	0.33533	-0.01385	_____
<i>6. What is the principal material used for the roof of your household?</i>			
Natural materials	-0.08743	0.10200	_____
Banco	-0.00210	0.00043	_____
Toles	0.15898	-0.06347	_____
Other	0.42937	-0.00209	_____
<i>7. What is the principal means of lighting in your household?</i>			
Electricity	0.33092	-0.02393	_____
Gas	0.09180	-0.00050	_____
Batteries	-0.08402	0.01006	_____
Wood	-0.11580	0.02994	_____
Kerosene	0.01685	-0.02613	_____
Other	-0.04939	0.00024	_____
<b>Total Household Asset Score</b> (sum of individual item scores)			_____

**2004 - QUINTILE CUT-OFF POINTS**

Wealth Quintile	Asset Index Value	
	Bottom Cut-Off	Top Cut-Off
Low	Low	-0.77049
Second	-0.77049	-0.57883
Third	-0.57883	-0.37609
Fourth	-0.37609	0.07235
High	0.07235	High

## ANNEX C. COUNTRIES COVERED BY THE HNP - POVERTY REPORT PROJECT\*

### *East Asia and Pacific*

Cambodia	2000
Indonesia	1997, 2002-03
Philippines	1998, 2003
Vietnam	1997, 2002

### *Europe and Central Asia*

Armenia	2000
Kazakhstan	1995, 1999
Kyrgyz Rep.	1997
Turkey	1993, 1998
Turkmenistan	2000
Uzbekistan	1996

### *Latin America and the Caribbean*

Bolivia	1998, 2003
Brazil	1996
Colombia	1995, 2000, 2005
Dominican Rep.	1996, 2002
Guatemala	1995, 1998-99
Haiti	1994-95, 2000
Nicaragua	1997- 98, 2001
Paraguay	1990
Peru	1996, 2000

### *Middle East and North Africa*

Egypt	1995, 2000
Jordan	1997
Morocco	1992, 2003-04
Yemen	1997

### *South Asia*

Bangladesh	1996-97, 1999-2000, 2004
India	1992-93, 1998-99
Nepal	1996, 2001
Pakistan	1990-91

### *Sub-Saharan Africa*

Benin	1996, 2001
Burkina Faso	1992-3, 1998-9, 2003
Cameroon	1991, 1998, 2004
Central African Rep.	1994-95
Chad	1996-97, 2004
Comoros	1996
Cote d'Ivoire	1994
Eritrea	1995
Ethiopia	2000
Gabon	2000
Ghana	1993, 1998, 2003
Guinea	1999
Kenya	1993, 1998, 2003
Madagascar	1997
Malawi	1992, 2000
Mali	1995-96, 2001
Mauritania	2000-01
Mozambique	1997, 2003
Namibia	1992, 2000
Niger	1998
Nigeria	1990, 2003
Rwanda	2000
Senegal	1997
South Africa	1998
Tanzania	1996, 1999, 2004
Togo	1998
Uganda	1995, 2000-01
Zambia	1996, 2001-02
Zimbabwe	1994, 1999

\* Note: electronic versions of reports for all countries are currently available at: [www.worldbank.org/povertyandhealth/countrydata](http://www.worldbank.org/povertyandhealth/countrydata). While supplies last, paper copies may be obtained at no charge by sending a request to the World Bank's health advisory service: [healthpop@worldbank.org](mailto:healthpop@worldbank.org).